## Konica

## SERVICE MANUAL

Models

## 7155/7165/7255/7272

# 7155/7165/7255/7272 SERVICE MANUAL 

## JANUARY 2004

## IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Minolta Business Solutions U.S.A., Inc. strongly recommends that all servicing be performed by Konica Minolta-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Minolta Business Solutions U.S.A., Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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## SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

## IMPORTANT NOTICE

4 Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Konica Minolta Business Technologies, INC. (hereafter called the KMBT) strongly recommends that all servicing be performed only by KMBT-trained service technicians.
Changes may have been made to this copier to improve its performance after this service manual was printed. Accordingly, KMBT does not warrant, either explicitly or implicitly, that the information contained in this service manual is complete and accurate.
The user of this service manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this service manual is intended.
Therefore, this service manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.
Keep this service manual also for future service.

## DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

4 In this service manual, each of three expressions " $\triangle$ DANGER", " $\triangle$ WARNING", and " $\triangle$ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

DANGER :Action having a high possibility of suffering death or serious injury
WARNING:Action having a possibility of suffering death or serious injury
CAUTION :Action having a possibility of suffering a slight wound, medium trouble, and property damage

Symbols used for safety and important warning items are defined as follows:
$\triangle$ :Precaution when using the copier.

:Prohibition when using the copier.

Direction when using the copier.




Do not touch with wet hand



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## SAFETY WARNINGS

## 4. [1] MODIFICATIONS NOT AUTHORIZED BY KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.

Konica Minolta brand copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.
Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

4

- Using any cables or power cord not specified by KMBT.
- Using any fuse or thermostat not specified by KMBT. Safety will not be assured, leading to a risk of fire and injury.
- Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.
- Disabling relay functions (such as wedging paper between relay contacts)

Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury.

- Making any modification to the copier unless instructed by KMBT
- Using parts not specified by KMBT

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## [2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

4 Konica Minolta brand copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

## 1.Power Supply

## \WARNING: Wall Outlet

- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

If excessive current flows in the wall outlet, fire may result.


## \WARNING: Power Plug and Cord

- Make sure the power cord is plugged in the wall outlet securely.

Contact problems may lead to increased resistance, overheating, and the risk of fire.

- Check whether the power cord is damaged. Check whether the sheath is damaged.

If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT. Using the damaged power cord may result in fire or electric shock.

- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:
a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier. Secure the cord with a fixture properly.

b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT.
If the power cord (inlet type) is not connected to the copier securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

- Check whether the power cord is not stepped on or pinched by a table and so on.

Overheating may occur there, leading to a risk of fire.


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## \WARNING: Power Plug and Cord

- Do not bundle or tie the power cord.

Overheating may occur there, leading to a risk of fire.


- Check whether dust is collected around the power plug and wall outlet. Using the power plug and wall outlet without removing dust may result in fire.

- Do not insert the power plug into the wall outlet with a wet hand.

The risk of electric shock exists.

- When unplugging the power cord, grasp the plug, not the cable.

The cable may be broken, leading to a risk of fire and electric shock.


## 4 WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.

If used, the risk of fire exists.

- When an extension cord is required, use a specified one.

Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
Do not use an extension cable reel with the cable taken up. Fire may result.


## \WARNING: Ground Lead

- Check whether the copier is grounded properly.

If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
a. Ground terminal of wall outlet

b. Ground terminal for which Class D work has been done

## \WARNING: Ground Lead

- Pay attention to the point to which the ground lead is connected.

Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
a. Gas pipe (A risk of explosion or fire exists.)
b. Lightning rod (A risk of electric shock or fire exists.)
c. Telephone line ground (A risk of electric shock or fire exists in the case of lightning.)
d. Water pipe or faucet (It may include a plastic portion.)

## 2.Installation Requirements

## 4. WARNING: Prohibited Installation Place

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.

A risk of fire exists.

- Do not place the copier in a place exposed to water such as rain water.

A risk of fire and electric shock exists.


## 4. WARNING: Nonoperational Handling

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.

Dust collected around the power plug and outlet may cause fire.


## $\triangle$ CAUTION: Temperature and Humidity

- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.

A risk of degradation in copier performance or deformation exists.
Do not place the copier in a place exposed to cool wind.
Recommended temperature and humidity are as follows:
Temperature: $10^{\circ} \mathrm{C}$ to $30^{\circ} \mathrm{C}$


Humidity: 10\% to 80\% (no dew condensation)
Avoid other environments as much as possible.

## 4CAUTION: Ventilation

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.

Place the copier in a well ventilated place to prevent machine problems and image faults.


## $\triangle$ CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.

If a bad smell of ozone is present in the following cases, ventilate the room.
a. When the copier is used in a poorly ventilated room
b. When taking a lot of copies

c. When using multiple copiers at the same time

## \CAUTION: Vibration

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.

Constant vibration will cause problems.

- Be sure to lock the caster stoppers.

In the case of an earthquake and so on, the copier may slide, leading to a

injury.

## \CAUTION: Inspection before Servicing

- Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.

If the prescribed procedure or tool is not used, the copier may break and a risk of injury or fire exists.

- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.

When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.


- The area around the fixing unit is hot.

You may get burnt.


```
You may getburnt.
```



## \DANGER: Work Performed with the Copier Powered

- Take every care when making adjustments or performing an operation check with the copier powered.

If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.


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## \DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached. High-voltage exists around the drum unit. A risk of electric shock exists.



## \WARNING: Safety Checkpoints

- Check the exterior and frame for edges, burrs, and other damages. The user or CE may be injured.
- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.

They can short internal circuits and cause electric shock or fire.

- Check wiring for squeezing and any other damage.

Current can leak, leading to a risk of electric shock or fire.

- When disconnecting connectors, grasp the connector, not the cable.
(Specifically, connectors of the AC line and high-voltage parts) Current can leak, leading to a risk of electric shock or fire.
- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.

Current can leak, leading to a risk of copier trouble or fire.

- Check high-voltage cables and sheaths for any damage.

Current can leak, leading to a risk of electric shock or fire.


- Check electrode units such as a charging corona unit for deterioration and sign of leakage.

Current can leak, leading to a risk of trouble or fire.

- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.

The laser light can enter your eye, leading to a risk of loss of eyesight.


- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.

The laser light can enter your eye, leading to a risk of loss of eyesight.

- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.

Improper replacement can cause explosion.


## \WWARNING: Safety Checkpoints

- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.

A risk of fire exists.


- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.

If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).

- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

Current can leak, leading to a risk of electric shock or fire.


- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)


A risk of copier trouble, electric shock, and fire exists.

## <br>DANGER: HANDLING OF SERVICE MATERIALS

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

If the substances get in the eye, rinse with plenty of water immediately.


When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.

You may be burned due to dust explosion.


## <br>DANGER : HANDLING OF SERVICE MATERIALS

- Unplug the power cord from the wall outlet.

Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.


- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.

A risk of fire exists.


- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

A risk of fire exists.


- When using any solvent, ventilate the room well.

Breathing large quantities of organic solvents can lead to discomfort.


## [3] MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBT must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBT.
4. For reports and measures concerning serious accidents, follow the regulations given in "Serious Accident Report/ Follow-up Procedures".

## [4] CONCLUSION

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

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## SAFETY INFORMATION

## IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1 " laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

## SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.
[1] Overall protection circuit
[2] L2 and L3 (fixing heater lamps) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

## [1] Overall Protection Circuit



1. Protection by CBR1 and CBR2 (circuit breakers)
CBR1 and CBR2 interrupt the AC line instantaneously when an excessive current flows due to a short in the AC line.

## $\triangle$ CAUTION:

The CBR1 and CBR2 functions must not be deactivated under any circumstances.
[2] Protection by L2, L3 and L4 (Fixing Heater Lamps) Overheating Prevention Circuit


1. Protection by software

The output voltage from TH1 (fixing temperature sensor 1) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) are turned OFF.

## $\triangle$ CAUTION:

Do not change the gap between the roller and TH1. When replacing TH1, check the specified mounting dimensions. The RL1 function must not be deactivated under any circumstances.
2. Protection by the hardware circuit

The output voltages from TH1 and TH2 (fixing temperature sensors) are compared with the abnormality judgment reference value in the comparator circuit. If the output voltage from TH1 or TH2 exceeds the reference value, L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) are turned OFF in hardware means.

## $\triangle$ CAUTION:

Periodically check the TH2 face contacting the roller, and replace TH2 if any abnormality is detected.
Since TH1 (fixing temperature sensor)
face does not contact the roller, check the distance from the roller and the sensor orientation if any abnormality is detected. The RL1 function must not be deactivated under any circumstances.
3. Protection by TS1 (thermostat/U) and TS2 (thermostat/L)
When the temperature of the fixing roller (upper/ lower) exceeds the specified value, TSs are turned OFF, thus interrupting the power to L2 (fixing heater lamp/1), L3 (fixing heater lamp/2), and L4 (fixing heater lamp/3) directly.

## $\triangle$ CAUTION:

Do not use any other electrical conductor in place of TS1 and TS2. Do not change the distance between the roller and TS (thermostat).

## INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.


## $\triangle$ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

In the case of the 7155/7165

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

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| KOnica 7155/7165 | SERVICE HANDBOOK | $\widehat{3}$ | Apr. 2003 | S-14 | REPLACEMENT |

## In the case of the 7255/7272


$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot
be read, contact our Service Office.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | S-14-1 | ADDITION |



## $\triangle$ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | S-14-2 | ADDITION |

## SCANNER SECTION



## WRITE UNIT

4. In the case of the $7155 / 7165$


In the case of the $7255 / 7272$


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | S-15 | REPLACEMENT |



## $\triangle$ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| Konica 7155/7165 | SERVICE HANDBOOK | $\widehat{3}$ | Apr. 2003 | S-17 | ADDITION |


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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | S-18 | ADDITION |

## \& LIST OF DIFFERENCE FOR 7155/7165 AND 7255/7272



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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | 1 | REPLACEMANT |

$1$

## OUTLINE OF SYSTEM

In the case of the 7155/7165


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In the case of the 7255/7272


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-1-1$ | ADDITION |

## 7155/7165/7255/7272 PRODUCT SPECIFICATIONS

[1] Type
Installation type:
Console type (floor-mounted)
Copying method:
Indirect electrostatic method
Document tray type:
Fixed
Photosensitive material:
OPC
Sensitizing method:
Laser writing
Paper feed trays:
7155/7165:
Three stacked trays (two for 500 sheets of 80 $\mathrm{g} / \mathrm{m}^{2}$ or 20 lb paper, 1500 sheets of $80 \mathrm{~g} / \mathrm{m}^{2}$ or 20 lb paper)
7255/7272:
Four stacked trays ( 1500 sheets: $64 \mathrm{~g} / \mathrm{m}^{2}$ or 17 $\mathrm{lb} \times 1,1000$ sheets: $64 \mathrm{~g} / \mathrm{m}^{2}$ or $17 \mathrm{lb} \times 1,550$ sheets: $64 \mathrm{~g} / \mathrm{m}^{2} \times 2$ )
Common:
By-pass tray for various paper sizes (100 sheets of $80 \mathrm{~g} / \mathrm{m}^{2}$ or 20 lb paper)
LT-402 (4000 sheets of $80 \mathrm{~g} / \mathrm{m}^{2}$ or 20 lb paper) ${ }^{*} 1$,
LT-412 (4000 sheets of $80 / \mathrm{m}^{2}$ or 20 lbs paper) ${ }^{*} 1$
*1: Optional
[2] Functions
Applicable document types:
Sheets, book, solid object
Document size:
A3/11x17 maximum
Copy paper size:

- Metric area

A3 to A6R, $11 \times 17$ to $8.5 \times 11$, F4

- Inch area
$11 \times 17$ to $8.5 \times 5.5$, A3 to B5R, F4
Wide paper ( $7155 / 7165: 314 \mathrm{~mm} \times 459 \mathrm{~mm}$ max.)
(7255/7272:314 mm x 458 mm max.)


## Magnifications

Fixed magnifications:

- Metric area x1.00, x2.00, x1.41, x1.22, x1.15, x0.86, 0.82, x0.71, x0.50
- Inch area
x1.00, x2.00, x1.55, x1.29, x1.21, x0.93, 0.77, x0.65, x0.50

Special ratio magnifications: 3 modes
Zoom magnifications: x0.25 to $\times 4.00$ (in $1 \%$ steps)
Vertical magnifications: x0.25 to 4.00 (in $1 \%$ steps)
Horizontal magnifications: $\times 0.25$ to $\times 4.00$ (in $1 \%$ steps)
Warm-up time:

| 7155 | 5.5 minutes max. | $68^{\circ} \mathrm{F}$, rated |
| :--- | :--- | :--- |
| 7165 | 6.5 minutes max. | voltage |
| 7255 | 5 minutes max. |  |
| 7272 | 6 minutes max. |  |

First copy out time (FCOT)

| Mode | A4/8.5x11 |
| :--- | :--- |
| Manual | 3.4 seconds or shorter (7155) |
|  | 3.1 seconds or shorter (7165) |
|  | 3.4 seconds or shorter (7255) |
|  | 3.0 seconds or shorter (7272) |

*Straight paper ejection, platen mode, life size, non AE or AES, without finisher, paper feed from tray 1
Continuous copy speed (life size, copies/ min)

| Size | cpm |
| :--- | :--- |
| A4/8.5x11 | $55(7155)$ |
|  | $65(7165)$ |
|  | $55(7255)$ |
|  | $72(7272)$ |

## Continuous copy count:

1 to 9999
Copy density selection:
AE or AES, manual (9 steps)
Arbitrary density (2 modes)
E-RDH memory capacity:
Standard 64 MB
Maximum 320 MB (7155/7165), 576 MB
(7255/7272)

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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[3] Applicable Copy Paper
Plain paper:
High-quality paper of $60 \mathrm{~g} / \mathrm{m}^{2}$ or 17 lb to $90 \mathrm{~g} /$ $\mathrm{m}^{2}$ or 24 lb
Special paper (bypass feed only):
OHP film
Blueprint master paper
(both by-pass tray and stacked trays):
Tabs
Plain paper of $50 \mathrm{~g} / \mathrm{m}^{2}$ or 13 lb to $59 \mathrm{~g} / \mathrm{m}^{2}$ or 16lbs
Plain paper of $91 \mathrm{~g} / \mathrm{m}^{2}$ or 24 lb to $200 \mathrm{~g} / \mathrm{m}^{2}$ or 45 lb

## [4] Options

LCT: LT-402, LT-412
Key counter
4. Expansion memory unit:

MU-401, MU-404 (64 MB)
MU-402, MU-405 ( 128 MB)

## Paper exit tray

Hard disk: HD-105
4 Finisher: FS-110, FS-210, FS-111
4 Shift tray: SF-101
Cover sheet feeder: PI-110
Puncher: PK-110, PK-120
Puncher with Z-folding: PZ-108, PZ-109
Adapter for PZ: PZ-108A-kit
(4) Printer controller: IP-511, IP-511Type-A

4 Postscript 3: PS-351, PS-351Type-A
[5] Particulars of Machine Power supply:
230 VAC $-14 \%$ to $10.6 \% 50 \mathrm{~Hz} / 60 \mathrm{~Hz}$ 120 VAC $\pm 10 \% 60 \mathrm{~Hz}$

## Power consumption:

230 V Machine : 2300 W max. (full option) 120 V Machine : 1920 W max. (full option)
(4) Weight:

Approximately 447 lb (7155/7165)
Approximately $475 \mathrm{lb}(7255 / 7272)$

External dimensions:

4. For $7272 / 7255$ models, the shapes of the tray are different.
[6] Maintenance
Periodic maintenance: Every 250,000 copies

## 4. [7] Consumables

Developer: Common to 7155/7165/7255/7272
Toner: Common to 7155/7165/7255/7272
Drum: Common to 7155/7165/7255/7272 ( ${ }^{80}$ )

## [8] Environmental Conditions

 Temperature: $50^{\circ} \mathrm{F}$ to $86^{\circ} \mathrm{F}$Humidity: $10 \%$ to $80 \%$ RH
Note: The information herein may be subject to change for improvement without notice.

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## CENTRAL CROSS-SECTIONAL VIEW

In the case of the 7155/7165


In the case of the 7255/7272


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## DRIVE SYSTEM DIAGRAM

## [1] Fixing/Web Drive Section



## [2] Drum Drive Section


[3] Developing Drive Section


## [4] Paper Feed/Vertical Conveyance/Tray Up Drive Sections

 In the case of the 7155/7165

## In the case of the 7255/7272



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[5] Bypass Paper Feed /ADU Pre-Registration Drive Section


## [6] Charging and Transfer/Separation Wire Cleaning Drive Section



## [7] ADU Conveyance Drive Section



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[8] Paper Exit Drive Section

[9] Toner Supply Drive Section

[10] Optics Drive Section



## UNIT EXPLANATION

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## EXTERNAL SECTION

## [1] Composition

In the case of the 7155/7165


## In the case of the 7255/7272



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## DRIVE SECTION

## [1] Composition



## [2] Mechanisms

| Mecha- <br> nism | Driven Parts | Method |
| :--- | :--- | :--- |
| Drum <br> drive*1 | Drum, Toner guide <br> roller, Toner con- <br> veyancescrew, and <br> Separation claw <br> swing | Gear drive (ded- <br> icated motor) |
| Develop- <br> ing <br> drive*1 | Developing sleeve | Gear drive (ded- <br> icated motor) |
| Fixing <br> drive*1 | Fixing roller (upper) | Gear drive (ded- <br> icated motor) |
| Paper <br> feed <br> drive*1 | Tray 1/2/3, Vertical <br> conveyance roller <br> (middle/lower) | Gear drive (ded- <br> icated motor) + <br> Belt |
| By-pass/ <br> loop <br> drive*1 | By-pass feed roller <br> and ADU pre-regis- <br> tration roller | Gear drive (ded- <br> icated motor) + <br> Belt |
| Scanner <br> drive*1 | Exposure unit, V- <br> mirror unit | Wire drive (dedi- <br> cated motor )+ <br> Belt |
| Paper <br> exit <br> drive*1 | Paper exit roller <br> Gear drive (ded- <br> icated motor) |  |

*1 Independent drive mechanisms
Drive mechanisms of this machine are driven by dedicated motors to ensure high-speed operation and to improve serviceability of the drum unit and developing performance.
Speeds of the drum motor (M2), fixing motor (M4), and loop roller motor (M6) are switched as shown below according to the paper type selected in the key operator mode, thus enhancing reliability of copying on thick paper.

| Paper type | Motor speed |
| :--- | :--- |
| Thick paper | $185 \mathrm{~mm} / \mathrm{s}(7155 / 7165)$ |
|  | $172.5 \mathrm{~mm} / \mathrm{s}(7255 / 7272)$ |
| Others | $280 \mathrm{~mm} / \mathrm{s}(7155 / 7255)$ |
|  | $320 \mathrm{~mm} / \mathrm{s}(7165)$ |
|  | $345 \mathrm{~mm} / \mathrm{s}(7272)$ |


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[3] M2 (Drum) Control


M2 (drum) is controlled by PRCB (printer control board) and the motor drive power is supplied from DCPS (DC power supply unit).

## 1. Operation

M 2 (drum) is a motor driven by 24 VDC . It drives the drum, toner guide roller, toner conveyance screw, and separation claw swing. The flywheel mechanism adopted for M2 ensures accurate and steady rotation.
M2 starts rotating when the START button is pressed and stops when the specified time lapses after completion of second paper feeding of the last copy.
When either one of the front-left and front-right doors of this machine opens, MS1 (interlock MS/ R) or MS2 (interlock MS/L) actuates to stop supplying the DC power to the motor, causing M2 to stop.
2. Signals
a. Input signal
(1) DRUM_EM (M2 to PRCB)

M2 (drum) rotation abnormality detection signal
$[H]$ : Rotation error (when motor speed changes by $6.5 \%$ more or less than the motor speed specified value)
[L]: Normal rotation
b. Output signals
(1) DRUM_CONT (PRCB to M2)

M2 (drum) ON/OFF control signal
[L]: M2 ON
[H]:M2 OFF
(2) CW/CCW (PRCB to M4)

M2 (drum) rotational direction switchover signal
[L]: CW rotation
[H]: CCW rotation
(3) DRUM_CLK (PRCB to M2)

M2 (drum) rotational speed control clock signal

## [4] M4 (Fixing) Control



M4 (fixing) is controlled by PRCB (printer control board) and the motor drive power is supplied from DCPS (DC power supply unit).

1. Operation

M4 (fixing) is a motor driven by 24 VDC. It drives the fixing roller.
M4 starts rotating when the START button is pressed and stops when the last copied paper has been ejected.
During the warm-up operation, M4 rotates to rotate the fixing roller.

## 2. Signals

a. Input signal
(1) MAINM_EM (M4 to PRCB)

M4 (fixing) rotation error detection signal
$[H]$ : Rotation error (when motor speed changes by $6.5 \%$ more or less than the motor speed specified value)
[L]: Normal rotation
b. Output signals
(1) MAINM_CONT (PRCB to M4)

M4 (fixing) ON/OFF control signal
[L]: M4 ON
[H]:M4 OFF
(2) MAINM_F/R (PRCB to M4)

M4 (fixing) rotational direction switchover signal [L]:CW rotation $[\mathrm{H}]: \mathrm{CCW}$ rotation
(3) MAINM_EM (M4 to PRCB)

M4 (fixing) rotational speed control clock signal

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## SCANNER SECTION

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Light source | Xenon lamp |
| Exposure | Light source moving slit exposure, <br> static exposure |
| Scanning | Platen original scanning: 1st, 2nd, <br> and 3rd mirrors are shifted. <br> RADF original scanning: Original <br> is moved with light source held sta- <br> tionary. |
| Lamppower <br> supply | Lamp cord |
| Scanner <br> cooling | Cooling fan |

## [3] M11 (Scanner) Control

2 UNIT EXPLANATION

M11 (scanner) is driven by SCDB (scanner drive board) and is controlled by PRCB (printer control board).
The related signal is PS61 (scanner HP).

## 1. Operation

a. Operation of M11 (scanner)

M11 (scanner) is a 3 -phase stepping motor driven by the 3-phase bipolar constant-current drive method. The motor is turned ON/OFF by supplying/stopping clock pulses.
The rotational speed, direction, and amount of movement of M11 is determined by the increment of the driving step count. This count is reset each time PS61 (scanner HP) is turned ON or OFF by the exposure unit.
b. Movement speed of the exposure unit Scanning speed

4 | Operation mode | Movement speed |
| :--- | :--- |
| Scan $(1: 1)$ | $320 \mathrm{~mm} / \mathrm{s}(7155 / 7165)$ |
|  | $357 \mathrm{~mm} / \mathrm{s}(7255 / 7272)$ |
| Return | $640 \mathrm{~mm} / \mathrm{s}$ |
| Home position search | $247 \mathrm{~mm} / \mathrm{s}$ |

c. Exposure unit home position search

When SW2 (sub power switch) or the START button is pressed, M11 (scanner) searches for the home position of the exposure unit. However, this operation is performed in different ways depending on whether PS61 (scanner HP) is ON or OFF.
(1) When PS61 (scanner HP) is OFF

(2) When PS61 (scanner HP) is ON

d. Read with shading correction

Shading correction is performed in different ways depending on whether SW2 (sub power) is ON or the START button is ON. When shading correction starts, the exposure unit is at the home position and PS61 (scanner HP) is OFF.
(1) When SW2 (sub power) is ON

L1 (exposure lamp) turns ON. Next, M11 (scanner) moves the exposure unit toward the paper exit side. After being driven by the specified number of steps, M11 stops, thus reading the light reflected by the white reference plate installed underneath the glass stopper plate and performing the first white correction. Next, M11 moves the exposure unit toward the paper exit side. After being driven by the specified number of steps, M11 performs the second white correction.
Then, L1 is turned OFF for black correction, searching for the home position of the exposure unit.
In each of the first and second shading correction processes, the CCD 1 line data is read to compare brightness levels between pixels. The brighter data is used as white correction data.

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(2) When the START button is ON

L1 (exposure lamp) turns ON. Next, M11 (scanner) moves the exposure unit toward the paper exit side. After being driven by the specified number of steps, M11 (scanner) stops, thus reading the light reflected by the white reference plate installed underneath the glass stopper plate and performing the first white correction. Next, M11 moves the exposure unit toward the paper exit side. After being driven by the specified number of steps, M11 performs the second white correction.
Then, M11 proceeds to the ADF copy operation or platen copy operation.

## e. ADF copy operation

After completion of the shading correction started by pressing the START button, M11 (scanner) moves the exposure unit toward the paper exit side. After being driven by the specified number of steps from the position where PS61 (scanner HP) was turned ON, it stops. This position is the exposure position for ADF copy operation.
Then, ADF copy operation is performed. After completion of the ADF copy operation, L1 (exposure lamp) is turned OFF to start searching for the exposure unit home position.

## f. Platen copy operation

Platen copy operation is performed in different ways depending on whether AE control is performed.
After completion of the shading correction started by pressing the START button, AE scanning is performed in the paper feed direction if the AE mode has been selected.
(4) EE scanning distance is different between $7155 /$ 7165 and 7255/7272.
7155/7165: For the original paper size
7255/7272: 30 mm from the leading edge of an original paper
Then, exposure scanning is performed at the speed corresponding to the specified magnification by the distance corresponding to the original size, thus searching for the home position.
(1) Operation with AE

(2) Operation without AE

2. Signals
a. Input signals
(1) SIG/SCANHP_PS (PS61 to SCDB to PRCB) Scanner home position detection signal The reference position of the home position of the exposure unit is detected.
[L]: The exposure unit is detected.
$[\mathrm{H}]$ :The exposure unit is not detected.
b. PRCB output signal
(1) SCAN_CLK (PRCB to SCDB) M11 (scanner) clock signal
(2) SCAN_F/R (PRCB to SCDB) M11 (scanner) rotational direction switchover signal
[L]: The exposure unit is moved toward the paper exit side.
$[H]$ :The exposure unit is moved toward the paper feed side.
(3) MODE1 to 3 (PRCB to SCDB) M11 (scanner) energize switchover signals
(4) SCAN_CUR1 to 3 (PRCB to SCDB) M11 (scanner) energize current switchover signals
c. SCDB output signals
(1) U, V, W (SCDB to M11) M11 (scanner) drive control signals These signals are used to control rotation of M11 (scanner). By supplying and stopping clock pulses, the motor is turned ON/OFF and the rotational direction is switched.

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## [4] Exposure Control



L1 (exposure lamp) is driven by L1 INVB (L1 inverter) and is controlled by PRCB (printer control board) via SCDB (scanner drive board).

1. Operation

L1 (exposure lamp) is a xenon lamp driven by the inverter circuit. The xenon lamp can emit a constant light intensity and generates less heat than other lamps, so it does not require the light intensity control circuit that has been used in the existing machines, requiring no thermal protector circuit. However, since L1 is held lit when the exposure unit is stationary in the ADF mode, FM9 (scanner cooling) is installed in the read section.
2. Signals
a. Output signals
(1) EXP_CONT (PRCB to SCDB)

L1 (exposure lamp) ON/OFF control signal
[L]: L1 ON
[H]:L1 OFF
(2) CONT (SCDB to L1 INVB)

L1 (exposure lamp) ON/OFF control signal
[L]: L1 ON
[H]:L1 OFF
[5] Original Read Control
In the case of the 7155/7165


In the case of the 7255/7272

2 UNIT EXPLANATION
(2) ADF mode

After lapse of the specified interval since the original's leading edge turned PS306 (original conveyance) ON.

Original read control is performed by ADB (A/D converter board) and CCD sensor installed in ADB.

1. Operation

The light reflected by the exposed original is input to the CCD sensor through the lens. The analog voltage corresponding to the quantity of the input light is A/D-converted in the ADB (A/D converter board), being output to the ICB (image control board).
a. Original read

The original read timing is as follows:
(1) Platen mode

After lapse of the specified interval since the exposure unit turned PS61 (scanner HP) OFF.

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[6] APS Control


The APS method used in the platen mode is different from that used in the ADF mode. The signal read by the APS sensor or RADF's original size detection sensor is processed by ICB (image control board) via SCDB (scanner drive board).

## 1. Operation

a. APS detection
(1) ADF mode

The paper size is detected according to the combination of ON/OFF states of PS309 (original size/2) and PS310 (original size/1) of the RADF's original feed tray and the resistance value of VR301 (original paper size).
(2) Platen mode

The paper size is detected according to the combination of ON/OFF states of PS63 (APS/1), PS64 (APS/2), and PS65 (APS/3) and the signal read by the CCD sensor. PS63 to PS65 are used to detect the original size in the sub-scanning direction and the CCD sensor is used to detect the original size in the main scanning direction.


Relationships between sensors and paper sizes are as follows:

| Sensor | PS65 | PS63 | PS64 |
| :---: | :---: | :---: | :---: |
| Min. size | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| B5R | $\bullet$ | $\bigcirc$ | $\bigcirc$ |
| B5 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| B4 | $\bullet$ | $\bullet$ | $\bullet$ |
| A4R | $\bullet$ | $\bullet$ | $\bigcirc$ |
| A4 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| A3 | $\bullet$ | $\bullet$ | $\bullet$ |
| $8.5 \times 11 \mathrm{R}$ | $\bullet$ | $\bigcirc$ | $\bigcirc$ |
| $8.5 \times 11$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| $8.5 \times 14$ | $\bullet$ | $\bullet$ | $\bullet$ |
| 11x 17 | $\bullet$ | - | $\bullet$ |
| $\begin{aligned} & \bullet \text { ON } \\ & \text { O OFF } \end{aligned}$ |  |  |  |

b. APS detection timing

The APS detection timing differs between the platen mode and DF mode.
(1) ADF mode

When the RADF mode is selected or an original is set on the RADF original feed tray, APS detection takes place using PS309 (original size/2), PS310 (original size/1), and VR301 (original size).
(2) Platen mode

When the RADF is closed and PS51 (APS timing) turns ON, L1 (exposure lamp) turns ON and the CCD detects the reflected light to detect the original size in the main scanning direction. Since RADF is still open at this time, the black level of the sky shot (outside the original) and the white level of the original (inside the original) are detected according to whether an original is present. At this time, the original size in the subscanning direction is detected using PS63 to PS65 (APS/1 to APS/3). When the RADF is closed completely and PS311 (ADF open/close) turns ON, CCD reads the white level of the platen cover and the black level in the original. Among the two original sizes detected as discussed above, the larger size is determined as the original size in the main scanning direction.
2. Signals
a. Input signals
(1) APS_TIM (PS51 to SCDB) ADF open/close detection signal [L]: ADF is closed.
$[\mathrm{H}]$ : ADF is open.
(2) APS.1/APS.1_SIG (PS63 to SCDB to ICB)

Paper size detection signal
[L]: Paper is detected.
$[\mathrm{H}]$ : Paper is not detected.
(3) APS.2/APS.2_SIG (PS64 to SCDB to ICB)

Paper size detection signal
[L]]: Paper is detected.
$[\mathrm{H}]$ : Paper is not detected.
(4) APS3/APS.3_SIG (PS65 to SCDB to ICB)

Paper size detection signal
[L]: Paper is detected.
[ H$]$ : Paper is not detected.
(5) SIZE_PS_L (PS309 to SCDB to ICB)

Paper size detection signal
[L]: Paper is detected.
[ H$]$ : Paper is not detected.
(6) SIZE_PS_S (PS310 to SCDB to ICB)

Paper size detection signal
[L]: Paper is detected.
[ H$]$ : Paper is not detected.
(7) SIZE_ANA (PS301 to SCDB to ICB)

Paper size detection signal
[L]: Paper is detected.
$[\mathrm{H}]$ :Paper is not detected.
(8) COVER_SIG (SCDB to ICB)

Same as APS TIM signal.
(9) APS_TIMING (SCDB to PRCB)

Same as APS TIM signal.
b. Output signals
(1) APS_CONT

This signal controls ON/OFF states of APS_5V power for driving PS63, PS64, and PS65 (APS1 to APS3).
[L]: APS_5V OFF
[H]:APS_5V ON

## [7] AE Control

In the case of the 7155/7165


In the case of the 7255/7272

2 UNIT EXPLANATION

The CCD sensor detects the image density on an original during AE scanning to select the optimum copy gamma correction curve.
AE processing is controlled by the ICB (image control board).

## 1. Operation

a. AE detection
(1) Platen mode

The image density on an original is measured during $A E$ scanning preceding the exposure scanning that is carried out after depression of the START button.
<AE sampling area>

1) Normal copy

10 mm inside the perimeter of the original detected by APS. (7155/7165)
10 mm inside the perimeter of the scanned area within 30 mm from the leading edge of an original. (7255/7272)
2) Non-image area erasure mode

Entire original area detected during pre-scanning.
(2) ADF mode

The image at the leading edge of the original is read when the PRINT button is pressed.
The read data is used to measure the image density on the original.
<AE sampling area>

1) Main scanning direction

10 mm area inside the original detected by APS
2) Sub-scanning direction

2 -to-4 mm area from the leading edge of the original.

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## WRITE UNIT

## [1] Composition


[2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Scan*1 | Polygon mirror |
| Light source*2 | 1-chip, 2-beam laser diode <br> (Power: 15 mW per beam) |
| Reference posi- <br> tioning | Index sensor |

## *1 Path of laser light

The light output from the semiconductor laser is radiated onto the OPC drum via the collimator lens, cylindrical lens 1 , polygon mirror, fo lens, cylindrical lens 2, and write mirror.


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*2 Light source
Conventionally, two parallel beams were generated from two laser beams. The laser diode adopted for this machine can generate two beams using a single chip, requiring neither fineadjustment prism nor beam composition prism.
[3] M15 (Polygon) Control


M15 (polygon) is driven by PMDB (polygon drive board) and is controlled by PRCB (printer control board).

1. Operation
a. Explanation of operation

M15 is a 3-phase brushless DC motor which is driven by the 3 -phase bipolar method. The current flowing through the coil is switched according to the position of the rotor detected by the position sensor (magnetic sensor) in the motor. This motor rotates the polygon mirror to scan the laser beams from LDB (laser driver board) in the axial direction of the drum. Its rotation is held constant by PLL control.
b. Rotational speed

M15 is powered by 24 VDC and its rotational speed is as follows:
In the case of the 7155/7165

| Rotational <br> speed | Linear <br> speed | 7155 | 7165 |
| :--- | :---: | :---: | :---: |
| $37,795 \mathrm{rpm}$ | $320 \mathrm{~mm} / \mathrm{s}$ | - | normal |
| $33,070 \mathrm{rpm}$ | $280 \mathrm{~mm} / \mathrm{s}$ | normal | - |
| $21,850 \mathrm{rpm}$ | $185 \mathrm{~mm} / \mathrm{s}$ | thick paper |  |

4. In the case of the 7255/7272

| Rotational <br> speed | Linear <br> speed | 7255 | 7272 |
| :--- | :---: | :---: | :---: |
| $40,748 \mathrm{rpm}$ | $345 \mathrm{~mm} / \mathrm{s}$ | - | normal |
| $33,070 \mathrm{rpm}$ | $280 \mathrm{~mm} / \mathrm{s}$ | normal | - |
| $40,748 \mathrm{rpm}$ | $172.5 \mathrm{~mm} / \mathrm{s}$ | thick paper |  |


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2. Signals
a. Input signals
(1) POLM_LOCK (PMDB to PRCB)

This signal indicates the clock synchronization state of M15 (polygon).
[L]: Synchronous (normal)
[H]:Asynchronous (abnormal)
b. Output signals
(1) POLM_CONT (PRCB to PMDB)

This signal turns ON/OFF M15.
[L]: M15 ON
[H]:M15 OFF
(2) POLM_CLK (PRCB to PMDB)

This is a reference clock signal for PLL-controlling M15 in PMDB.
[4] Image Write Control
In the case of the 7155/7165



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The analog image data from the CCD sensor is A/D-converted by the ADB (A/D converter board), then sent to the ICB (image control board) for data processing. The processed image data is converted into a laser beam on the LDB (laser driver board), and then the beams are radiated onto the drum surface. Two beams are emitted per laser diode. Two lines of image data is written per scan.
The write start reference position is detected by the INDXSB (index sensor board). The ICB has an E-RDH (electronic RDH) function to store digitized image data. Various editing functions can be performed based on this data.

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1. Operation
a. Image processing

The following processing is performed by the ICB (image control board):
(1) AOC (Automatic Offset Control)

The IC on the ADB (A/D converter board) automatically adjusts the analog offset voltage of the CCD sensor output so that it is at the lower limit of the $A / D$ converter level.
(2) AGC (Automatic Gain Control)

During shading correction, the white reference plate is read to adjust the analog amplification factor of the CCD sensor output so that the read level is at the upper limit of the $A / D$ converter level.
(3) Shading correction <Timing>

- When SW2 (sub power) is ON
- At job start
(4) Brightness/density conversion
(5) AE processing
(6) Text/dot pattern judgment
(7) Filtering
(8) Magnification change processing
(9) Copy gamma correction
(10) Skew correction
(11) Error diffusion processing
(12) Data compression/expansion processing
(13) Write density control
b. Write

The ICB (image control board) sends image data on a pixel basis to LDB (laser driver board) according to the control signals from the PRCB (printer control board).
LDB causes the laser light to be emitted for a period corresponding to the image data. This laser light is radiated onto the drum surface.
(1) MPC (Maximum Power Control)

ICB (image control board) informs LDB (laser driver board) of the maximum output value and sets that value for the laser beam emission. LDB store this value and maintain the laser beam level using the APC (Auto Power Control).
<MPC timing>
When SW2 (sub power switch) is turned ON
(2) APC (Automatic Power Control)

After MPC is set, the ICB (image control board) outputs an APC start instruction to LDB (laser driver board) at the following timing:
<APC timing>
LDB (laser driver board) automatically monitor the laser drive current one line at a time, and controls it so that the light intensity remains the MPC value.
(3) Write timing
a) Main scanning direction

Using INDEX signal (/IND) from INDXSB (index sensor board), the laser write reference position is determined for each scan in the drum rotation direction, and the image is written onto the copy paper according to the copy paper position detected by PS70 (paper mis-centering).
b) sub scanning direction

Specified interval after PS44 (registration) detects the leading edge of the copy paper.

## 2. Signals

a. Input signals
(1) /IND (INDXSB to ICB)

This is an index signal used to detect deviation of main scanning.
(2) /INDPR (INDXSB to ICB)

This signal monitors the INDXSB (index sensor board) power supply.
[H]: Abnormal
[L]: Normal
(3) /ALM1 (LDB to ICB)

This signal indicates the state of the laser 1 drive current.
[H]: Normal
[L]: Abnormal
(4) LPR5V (LDB to ICB)

This signal monitors the LDB (laser driver board) power supply.
[H]: Normal
[L]: Abnormal
(5) /ALM2 (LDB to ICB)

This signal indicates the state of the laser 2 drive current.
[H]: Normal
[L]: Abnormal
b. Output signals
(1) $/ \mathrm{S} / \mathrm{H} 1$ (ICB to LDB)

APC sampling signal for one line (for laser 1)
(2) /ENB1 (ICB to LDB)

Laser APC function ON/OFF control signal (for laser 1)
Laser beam emission stops when it is OFF.
(3) $/ \mathrm{S} / \mathrm{H} 2$ (ICB to LDB)

APC sampling signal for one line (for laser 2)
(4) /ENB2 (ICB to LDB)

Laser APC function ON/OFF control signal (for laser 2)
Laser beam emission stops when it is OFF.
(5) VIDEO1/VIDEO1 (ICB to LDB)

Image signal for laser 1
(6) VIDEO2/VIDEO2 (ICB to LDB)

Image signal for laser 2
(7) DACLK (ICB to LDB)

LDB (laser driver board) MPC value data transmission clock signal
(8) DADI (ICB to LDB)

LDB (laser driver board) signal for MPC
(9) DALD (ICB to LDB)

LDB (laser driver board) MPC value memory command signal
(10) /S/HB1 (ICB to LDB)

Sampling signal for laser bias current control (for laser 1) (7255/7272 only)
(11) /S/HB2 (ICB to LDB)

Sampling signal for laser bias current control (for laser 2) (7255/7272 only)

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## DRUM UNIT

## [1] Composition


[2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| PCLTSL | LED |
| Auxiliary separa- <br> tion *1 | Separation claws |
| Transport assis- <br> tance *2 | Ratchet wheel |

The drum unit is an integral assembly consisting of a drum, charging corona unit, developing unit, cleaning/toner recycle unit, PCL, and separation claws.
*1 Auxiliary separation

- To prevent paper jamming, three separation claws are used to separate paper from the drum forcibly. These separation claws are pressed against the drum or detached from it by turning ON/OFF the separation claw solenoid (SD1).
- To prevent a specific part of image-copied paper from being stained and to prevent the drum from being scratched, the swing mechanism slides the separation claws about 8 mm back and forth in parallel with the drum surface.



## *2 Transport assistance

The thick paper conveyance ability has been improved by the use of ratchets.
[3] Separation Claw Control


Separation claws are driven by SD1 (separation claw). Separation claws are swung by M2 (drum). SD1 is controlled by PRCB (printer control board).

1. Operation
a. Separation claw ON/OFF control

SD1 (separation claw) is a pull-type solenoid powered by 24 VDC . It turns ON to press separation claws against the drum to help image-copied paper separate.
(1) SD1 (separation claw) operation timing SD1 turns ON after a lapse of specified time from turning ON of PS43 (leading edge) of the second paper feed section. It turns OFF after a lapse of the time set by PRCB (printer control board).
b. Separation claw swing control

Separation claws are swung by M2 (drum) via the cam mechanism.
2. Signals
a. Output signal
(1) SPSD_DRV (PRCB to DCDB)

SD1 (separation claw) drive control signal
[L]: SD1 ON
[H]:SD1 OFF
[4] Paper Guide Plate Control


To prevent toner from adhering to the paper guide plate, a constant voltage is applied to the paper guide plate. This voltage is supplied from HV (high voltage unit) and is controlled by PRCB (printer control board).

1. Operation
a. ON/OFF timing

Turning ON/OFF in sync with M2 (drum)
b. Applied voltage
-500 VDC
2. Signal
a. Output signal
(1) GP. CONT (PRCB to HV)

This signal controls turning ON/OFF the voltage application to the paper guide plate.
[L]: Voltage applied
[H]: Voltage not applied

## CORONA UNIT SECTION

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Charging | Scorotron (DC negative <br> corona discharge) <br> Discharging wire: Tungsten, <br> 0.06 mm dia. (gold-plated skin <br> path, with automatic wire <br> cleaner) <br> Grid control: Gold-plated <br> stainless plate |
| Transfer | DC positive corona discharge <br> Discharging wire: Oxide film <br> tungsten, 0.06 mm dia., with <br> automatic wire cleaner |
| Separation | AC/DC corona discharge <br> Discharging wire: Oxide film <br> tungsten, 0.06 mm dia., with <br> automatic wire cleaner |

## [3] Charging Control



The current output to the charging wire and the voltage applied to the grid are supplied from HV (high voltage unit) and they are controlled by PRCB (printer control board).
The levels of outputs to these are transmitted using 8 -bit serial data. This serial data includes the level information for all outputs driven by HV , excluding the ON/OFF control signal. Accordingly, a separate signal line is provided to turn ON/OFF only the charging wire output and the grid output at the same time.

## 1. Operation

a. Charging

A Scorotron charging method is used. 24 VDC supplied from DCPS is raised to a negative DC voltage which is then discharged after being applied to the charging wire.
Charge output range: - $600 \mu \mathrm{~A}$ to $-1200 \mu \mathrm{~A}$
b. Grid voltage

The grid voltage is output from HV to the charging plate.
Grid voltage output range: -500 V to -1000 V

## 2. Signals

a. Input signal
(1) EM (C).SIG (HV to PRCB)

This signal indicates the leak or short state of the charging corona unit.
[L]: Normal
[ H$]$ : Abnormal
b. Output signals
(1) C.CONT (PRCB to HV)

This signal turns ON/OFF the charging wire.
[L]: Charging voltage ON
[H]: Charging voltage OFF
(2) TXD (PRCB to HV)

Output level of each high voltage electrode.
Serial data signal for control
(3) CLK (PRCB to HV) Clock signal for TXD
(4) LATCH (PRCB to HV) Latch signal for TXD

## [4] Transfer/Separation Control



The voltages applied to the transfer wire and separation wire is supplied from HV (high voltage unit) and are controlled by PRCB (printer control board). The levels of outputs to these wires are transmitted using 8 -bit serial data. This serial data includes the level information for all outputs driven by HV , excluding the ON/OFF control signal. Accordingly, a separate signal line is provided to turn ON/OFF only the transfer wire or separation wire.

1. Operation
a. Transfer

Positive DC high voltage is used for transfer.
Transfer DC output range: $50 \mu \mathrm{~A}$ to $600 \mu \mathrm{~A}$
b. Separation
$A C$ high voltage and negative $D C$ voltage are used for separation.
Separation AC output range: 4 kV to 5.7 kV
Separation DC output range: $0 \mu \mathrm{~A}$ to $-400 \mu \mathrm{~A}$
2. Signals
a. Input signals
(1) EM (T) .SIG (HV to PRCB)

This signal indicates the leak or short state of the transfer corona unit.
[L]: Normal
[H]: Abnormal
(2) $\mathrm{EM}(\mathrm{S}) . \mathrm{SIG}$ (HV to PRCB)

This signal indicates the leak or short state of the separation corona unit.
[L]: Normal
$[\mathrm{H}]$ : Abnormal
b. PRCB output signals
(1) T.CONT (PRCB to HV)

This signal turns ON/OFF the voltage applied to the transfer wire.
[L]: Transfer voltage ON
[ H$]$ : Transfer voltage OFF
(2) S.CONT (PRCB to HV)

This signal turns ON/OFF the voltage applied to the separation wire.
[L]: Separation voltage ON
[H]:Separation voltage OFF

## [5] M14 (Charger Cleaning) Control



M14 (charger cleaning) is a DC motor powered by 24 VDC and is controlled by PRCB (printer control board).

## 1. Operation

a. Purpose of driving

M14 (charger cleaning) is used to drive the charging wire cleaning unit.
b. Operation timing

The charging wires are cleaned when SW2 (sub power) is turned ON and when the fixing temperature is lower than $122^{\circ} \mathrm{F}$. They are also cleaned after the specified copy count is reached.

* Changeable with the 25 -mode DIP SW
c. Cleaning operation

Normally, the charging wire cleaning unit is on the front side of the machine. It moves back and forth to clean the charging wires. The movement direction is changed by changing the rotational direction of M14 (charge cleaning).
The rotational direction of M14 and the position of the cleaner are detected by monitoring the current value of M14 with PRCB (printer control board).

## 2. Signals

a. Output signal
(1) CHGM_A, B (PRCB to M14) M14 (charger cleaning) drive control signal. The drive direction of M14 is controlled by switching between the drive current directions of two signals.

| Status | CHGM_A | CHGM_B |
| :--- | :---: | :---: |
| Forward stroke <br> of cleaning | H | L |
| Backwardstroke <br> of cleaning | L | H |
| Stop | L | L |

［6］M10（Transfer／Separation Cleaning） Control


M10（transfer／separation cleaning）is a DC motor powered by 24 VDC and is controlled by PRCB （printer control board）via ADUDB（ADU drive board）．Between PRCB and ADUDB，signals are exchanged using serial data．

1．Operation
a．Purpose of driving
M10（transfer／separation cleaning）used to drive the transfer／separation wire cleaning pads．
b．Operation timing
The transfer／separation wires are cleaned when SW2（sub power）is turned ON or when the fixing temperature is lower than $122^{\circ} \mathrm{F}$ ．
It is also carried out after the specified copy count is reached．
＊Changeable with the 25 －mode DIP SW
c．Cleaning operation
Normally，the transfer／separation wire cleaning pads are on the front side of the machine．They move back and forth to clean the transfer and separation wires．The movement direction is changed by changing the rotational direction of M10（transfer／separation cleaning）．
The rotational direction of M10 and the position of the cleaner are detected by monitoring the cur－ rent value of M10 with PRCB（printer control board）．（7155／7165）

4．The rotational direction of M10 and the position of the cleaner are detected by turning on／off the PS52（transfer／separation PS／F）and PS53 （transfer／separation PS／R）．（7255／7272）

## 2．Signals

a．Input signals
（1）IO＿URXD（ADUDB to PRCB）
Serial data used to report the ADUDB（ADU drive board）operation state to PRCB（printer control board）
（2）REQ1（ADUDB to PRCB）
This signal indicates that sending data from ADUDB（ADU drive board）to PRCB（printer con－ trol board）is requested．
When ADUDB receives ACK1 and can send data，this signal stands at the［L］level．
（3）IO＿UCLK（ADUDB to PRCB）
Clock signal for IO＿URXD signal
（4）HP＿PS＿F（PS52 to ADUDB）
Home position detection signal of transfer／sepa－ ration cleaning member
It becomes $L$ when transfer／separation cleaning member reaches the home position．
（5）HP＿PS＿R（PS53 to ADUDB）
Reverse position detection signal of transfer／ separation cleaning member
It becomes $L$ when transfer／separation cleaning member reaches the reverse position．
b. Output signals
(1) SEP_CLM_M A, B (ADUDB to M10) M10 (transfer/separation cleaning) drive control signal
The drive direction of M10 (transfer/separation cleaning) drive control signal
The drive direction of M 10 is controlled by switching between the drive current directions of two signals.

| Status | SEP_CLM_MA | SEP_CLM_MB |
| :--- | :---: | :---: |
| Forward stroke of <br> cleaning | H | L |
| Backward stroke <br> of cleaning | L | H |
| Stop | L | L |

(2) IO_DTXD (PRCB to ADUDB)

Serial data used to report the machine operation state understood by PRCB (printer control board) to ADUDB (ADU drive board)
(3) IO_DCLK (PRCB to ADUDB)

Clock signal for IO_DTXD signal
(4) ADU_LATCH (PRCB to ADUDB)

Latch signal for IO_DTXD signal
(5) ACK1 (PRCB to ADUDB)

Reception acknowledgment signal. It is sent each time PRCB (printer control board) receives one-byte data from ADUDB (ADU drive board).
When PRCB receives REQ1 and can receive data, this signal stands at the [L] level.
(6) ERR_OUT1 (PRCB to ADUDB)

This signal requires resending of data when PRCB (printer control board) has failed in data reception from ADUDB (ADU drive board) due to an error.

## [7] PCL/TSL Control



LEDs are used for PCL (pre-charging exposure lamp) and TSL (transfer synchronization lamp). PCL is driven by the PRCB (printer control board). TSL is driven by ADUDB (ADU drive board). PCL and TSL are controlled by PRCB .

## 1. Operation

PCL turns ON when the START button is pressed. It is turned OFF after a lapse of the specified time from turning ON of PS37 (paper exit). TSL turns ON after a lapse of the specified time from turning ON of PS43 (leading edge) of the second paper feed section. It turns OFF after a lapse of the specified time from detection of the trailing edge of copy paper.
2. Signals
a. Output signals
(1) PCL CONT (PRCB to PCL) PCL ON/OFF control signal
[L]: PCL ON
[H]: PCL OFF
(2) TSL_DR (ADUDB to TSL) TSL ON/OFF control signal
[L]: TSL ON
[H]: TSL OFF

## DEVELOPING UNIT

## [1] Composition


[2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Developing | 2-component developer |
| Developing bias | DC bias |
| Developer <br> agitation | Main agitator <br> Auxiliary agitator |

1. Developing drive

The developing motor (M3) drives the following parts via the gear unit at the back:

- Developing sleeve
- Agitator wheel
- Agitator screws

2. Flow of developer

The developer inside the developing unit is supplied to the developing sleeve by the agitator wheel, and maintained at a constant thickness by the developer regulation plate (bristle height regulation plate). The developer remaining on the developing sleeve is returned to the agitator screws.


## [3] M3 (Developing) Control



M3 (developing) is controlled by PRCB (printer control board) and the motor drive power is supplied from DCPS (DC power supply unit).

## 1. Operation

M3 (developing) is a DC motor driven by 24 V . It drives the developing sleeve, agitator wheel, and agitator screws.
M3 turns ON when the PRINT button is pressed, and turns OFF after lapse of the specified time from turning OFF of the charging.
2. Signals
a. Input signals
(1) DEVM_EM (M3 to PRCB)

M3 (developing) abnormality detection signal
[H] Abnormal rotation (when motor speed changes by $6.5 \%$ more or less than the motor speed specified value)
[L] Normal rotation
b. Output signals
(1) DEVM_CONT (PRCB to M3)

M3 (developing) drive control signal
[L] M3 ON
[H] M3 OFF
(2) DEVM_CLK (PRCB to M3)

M3 (developing) rotational speed control clock signal
(3) DEVM_CW/CCW (PRCB to M3)

M3 (developing) rotational direction indication signal
[H]: CW direction rotation
[L]: CCW direction rotation
(4) EDVM_GAIN (PRCB to M3)

M3 (developing) rotational speed range indication signal
[H]: High speed range
[L]: Low speed range

## [4] Developing Bias Control



The developing bias voltage is supplied from HV (high voltage unit) and is controlled by PRCB (printer control board). The output level of the developing bias voltage is transmitted using 8 -bit serial data. This serial data includes the level information for all outputs driven by HV , excluding the ON/OFF control signal. Accordingly, a separate signal line is provided to turn ON/OFF only the developing bias.

## 1. Operation

Application of the developing bias voltage starts after a lapse of the specified time from turning ON of the START button, and stops after a lapse of the specified time from turning OFF of PS43 (leading edge) by the last copy paper.
Developing bias output range: - 300 V to -700 V
2. Signals
a. Output signal
(1) B.CONT (PRCB to HV)

Developing bias output ON/OFF control signal.
[L]: Developing bias ON
[ H ]:Develpoing bias OFF

## [5] Dmax Control



Dmax control is performed by TCSB (toner control sensor board), M2 (drum), M3 (developing), and so on under the control of PRCB (printer control board).

1. Operation

The purpose of Dmax control is to adjust the maximum density to the reference level for each machine.
a. Dmax control
(1) Method

Several latent images are created at the maximum laser power, images are developed with the rotational speed of the developing sleeve varied, then each density is read by the Dmax sensor (PD1) on TCSB (toner control sensor board).
The developing sleeve speed detected when the density has reached the reference level is recorded as the optimum sleeve speed, allowing developing to be performed at this sleeve speed.
(2) Timing
a) When the fixing temperature is lower than $122^{\circ} \mathrm{F}$ at SW2 (sub power) ON
b) Every 10,000 prints, upon completion of the last job.

## 2. Signals

a. Input signals
(1) DM_SIG_EX (TCSB to PRCB)

Output voltage of Dmax detection sensor (PC1) on TCSB (toner control sensor board)
Reference voltage: 2.5 V
(2) DM_MONI_EX (TCSB to PRCB)

This signal monitors the light reflected by the drum surface (without toner).
The voltage applied to the Dmax detection LED is corrected by TNLED_REF so that the output voltage becomes 1.9 V (calibration).
Reference voltage: 1.9 V
<Timing>
Before Dmax correction
(3) DRUM_JSIG_EX (TCSB to PRCB)

This signal detects a jam caused by paper wrapping around the drum. A jam is detected when the voltage becomes 4.0 V or more.
(4) TEMP, 3.3V2 (TCSB to PRCB)

Drum temperature detection signal
b. Output signals
(1) DMLED CONT (PRCB to TCSB)

Dmax LED ON/OFF control signal
[L]: LED ON
[H]: LED OFF
(2) TNLED_REF (PRCB to TCSB)

Power supply line for PD1 LED on TCSB.
The voltage is adjusted so that the Dmax MONI signal becomes 1.9 V .
(3) DJLED_CONT (PRCB to TCSB)

JAM LED ON/OFF control signal
[L]: LED ON
[H]: LED OFF

## [6] Gradation Correction Control



Gradation correction control is performed by TCSB (toner control sensor board), M2 (drum), M3 (developing), and so on under the control of PRCB (printer control board).

1. Operation

The gradation characteristics of the toner density versus exposure amount at the image forming section (drum area) are detected to obtain a linear relation between the image density on a document and the copying image density.
(1) Method

Exposure is performed with the laser PWM varied in several steps, and development is performed at the sleeve speed obtained by Dmax correction.
Next, each density is read by the $\gamma$ sensor (PD2) on TCSB (toner control sensor board) to detect the gradation characteristics of image density.
The gradation characteristics obtained here are used as the values for correcting the laser exposure amount.
Gradation correction control must be performed in two ways: 1-dot PWM (for normal mode) and 2-dot PWM (for photo mode).
(2) Timing
a) When the fixing temperature is lower than $122^{\circ} \mathrm{F}$ at SW2 (sub power) ON
b) Every 5,000 prints, upon competion of the last job.
2. Signals
a. Input signals
(1) G_SIG_EX (TCSB to PRCB)

This signal monitors the output voltage from the $\gamma$ sensor (PD2) on the TCSB (toner control sensor board) as well as the light reflected by the drum surface (without toner).
The voltage applied to the gradation detection LED is corrected by TNLED_REF so that the output voltage becomes 3.0 V (calibration).
Reference voltage: 3.0 V
<Timing>
Before gradation correction.
b. Output signal
(1) $\gamma$ LED CONT (PRCB to TCSB)

Gradation detection LED ON/OFF control signal
[L]: LED ON
[H]:LED OFF

## [7] Dot Diameter Correction Control



Dot diameter is detected by TCSB (toner control sensor board) and is controlled by PRCB (printer control board).

1. Operation

Dot diameter correction is performed to prevent the 1 -dot laser beam diameter from fluctuating due to the change in developing characteristics (caused by deteriorated developer) and soil in the write unit.
(1) Method

Multiple dot pattern patches with the same condensation are created to be read by the $\gamma$ sensor (PD2). The laser power where the $\gamma$ sensor output reaches the reference voltage is used as the MPC value.
(2) Timing
a) Every 10,000 prints, upon completion of the last job.
[8] Toner Density Control


The density of toner is controlled by controlling M12 (toner supply) from PRCB (printer control board).

1. Operation
a. Toner density detection

The reference patch density is detected using the patch detection method of TCSB (toner control sensor board) and the corresponding analog voltage signal is output to PRCB (printer control board), thus detecting the toner density. The PRCB compares the detected voltage with the reference value to determine whether toner must be added.
b. Toner supply operation

Upon read of the patch, M12 (toner supply) is turned ON to supply toner. The time needed to add toner depends on the paper size.
2. Signals
a. Output signals
(1) TNSM_A, AB (PRCB to M12) A-phase drive signal of M12 (toner supply)
(2) TNSM_B, BB (PRCB to M12) B-phase drive signal of M12 (toner supply)

## [9] FM4 (Developing Suction) Control



FM4 (developing suction) is controlled by PRCB (printer control board).

1. Operation
a. ON timing

FM4 (developing suction) is turned ON when M2 (drum) is turned ON .
b. OFF timing

FM4 (developing suction) is turned OFF after a lapse of the specified time from turning OFF of M2 (drum).
2. Signals
a. Input signal
(1) FM2 EM (FM4 to PRCB)

FM4 (developing suction) abnormality detection
signal
[L]: FM4 is normal.
[H]: FM4 is abnormal.
b. Output signal
(1) SUCTFAN_D (ACDB to FM4)

FM4 (developing suction) drive signal
[L]: FM4 OFF
[H]:FM4 ON

## TONER SUPPLY UNIT

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Toner supply | Supply by screw |
| Toner level detection | Piezoelectric method <br> $100 \pm 25 \mathrm{~g}$ |
| Toner agitation*1 | Agitator plate |
| Toner cartridge*2 | Rotary cartridge <br> Capacity: 1000 g |
| Toner leakage <br> prevention | Toner supply shutter |

## *1 Toner agitation

Toner agitator plates are driven by the following two motors through the gear unit:
a) Toner supply motor (M12): Drives the toner supply screws.
b) Toner bottle motor (M13): Drives the toner cartrdge.
The agitator plates prevent toner from solidifying and collecting on the toner level detection sensor (TLD).


## *2 Toner cartridge

When the toner cartridge rotates, toner is fed to the outlet of the cartridge through the spiral groove on the surface of the toner cartridge. When the outlet of the cartridge faces downward, toner flows out of the outlet into the agitation/conveyance section of the toner supply unit.

[3] Toner Level Detection Control


Toner level detection is controlled by the TLD (toner level detection sensor) and the PRCB (printer control board).

1. Operation
a. Toner level detection

A piezoelectric device is used as the TLD (toner level detection sensor).
When the level of toner in the hopper becomes low, the toner supply signal is output to PRCB (printer control board). As a result, a message is displayed on the LCD connected to OB1 (operation board/1).
b. Detection timing

The detection timing is as follows:

- Power-on
- When the front door opens or closes
- During copying
c. Toner supply to toner supply unit

When the no toner state is detected by TLD (toner level detection sensor), M13 (toner bottle) is turned ON to supply toner from the toner cartridge to the toner supply unit.
d. Detection of no toner state in toner cartridge If the no toner state is detected by TLD (toner level detection) after M13 has been held ON for a specified period of time, the toner cartridge is assumed to be empty.
2. Signals
a. Input signals
(1) TONER_SIG (TLD to PRCB)

When the level of toner in the toner supply unit becomes low, this signal goes low ([L]), displaying a message on the LCD connected to OB1 (operation board/1).
(2) TONERM_EM (M13 to PRCB)

M13 (toner bottle) abnormality detection signal
[L]: M13 is normal.
$[\mathrm{H}]: \mathrm{M} 13$ is abnormal.
b. Output signals
(1) T_SENSE_CONT (PRCB to TLD)

TLD (toner level detection sensor) power control signal
The TLD is powered only when it is detecting the toner level.
(2) TONERM_CONT (PRCB to M13)

M13 (toner bottle) control signal
[L]: M13 ON
[H]:M13 OFF
(3) TONERM_CLK (PRCB to M13)

M13 (toner bottle) rotation speed control clock signal
(4) TONERM_CW/CCW (PRCB to M13)

M13 (toner bottle) rotational direction indication signal
[H]: CW direction rotation
[L]: CCW direction rotation

## [4] M12 (Toner Supply) Control



M12 (toner supply) is controlled by the PRCB (printer control board). Toner density is detected by TCSB (toner control sensor board).

1. Operation
a. Toner density detection

The Dmax sensor (PD1) on the TCSB (toner control sensor board) detects the density of the toner control patch developed on the drum surface to output the signal corresponding to the detected density to PRCB (printer control board).
b. Toner supply

When the voltage detected by TCSB (toner control sensor board) is below the specified value, PRCB issues a control signal to drive M12 (toner supply). The relationship between the paper size and toner supply time is summarized in the following table:

| Paper size | Supply time (sec.) |
| :---: | :---: |
| A3 | 1.30 |
| B4 | 0.98 |
| F4 | 0.98 |
| A4 | 0.65 |
| B5 | 0.49 |
| B5R | 0.49 |
| A5 | 0.33 |
| $11 \times 17$ | 1.30 |
| $8.5 \times 14$ | 0.98 |
| $8.5 \times 11$ | 0.65 |
| $5.5 \times 8.5$ | 0.49 |

## CLEANING/TONER RECYCLE UNIT

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Drum cleaning | Cleaning blade |
| Toner collection *1 | Toner guide roller (TGR) |
| Toner recycle | Screwconveyance + Toner <br> recycle MC (MC14) |

*1 Toner collection
Toner removed by the cleaning blade is collected by the toner guide roller (TGR) and removed by the scraper, then conveyed by the toner conveyance screw to be reused. High pressure is applied to the toner guide roller (TGR) to enhance the toner cleaning ability.
*2 Toner recycle
When the drum performs preliminary rotation as warm-up, toner recycle MC (MC14) is turned OFF, stopping the drive force from the toner conveyance screw. This prevents excessive recycled toner from being conveyed to the developing unit.

## [3] TGR (Toner Guide Roller) Control



To enhance the toner cleaning ability, voltage is applied to the TGR (toner guide roller). This voltage is applied by HV (high voltage unit) under the control of PRCB (printer control board). The output level of the applied voltage is transmitted using 8 -bit serial data. This serial data includes the level information for all outputs driven by the HV unit excluding the ON/OFF control signal. Accordingly, a separate signal line is provided to turn ON/OFF only the TGR.

1. Operation
a. ON/OFF timing

The TGR is turned ON/OFF in sync with M2 (drum).
b. TGR (toner guide roller) output range 0 to $50 \mu \mathrm{~A}$
2. Signals
a. Output signal
(1) TGR.CONT (PRCB to HV)

TGR (toner guide roller) voltage ON/OFF control signal
[L]: Voltage is applied.
[H]: Voltage is not applied.

## [4] Other Control

To improve durability of the cleaning blade, the following control is performed:
a. Blade setting mode

A blade setting mode is available in the 36 mode. This mode will perform a task that is required after blade replacement during maintenance, etc. When this mode is used, toner adheres on the drum and then the blade cleans the drum, preventing blade peeling.
b. Black stripe creation control

To improve durability of the blade (stabilize load and stabilize paper dust crushing), a black stripe of toner is adhered on the drum and then cleaned.
7155/7165: once every 10 copies
7255/7272: once every 12 copies

* Changeable with the 25 -mode DIP SW

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $2-1-2$ | REPLACEMENT |

## 4 TRAY 1／2（7155／7165），TRAY 3／4（7255／7272） PAPER FEED UNIT

Caution：Tray $1 / 2$ of $7155 / 7165$ and tray $3 / 4$ of $7255 / 7272$ have the same shape and mechanism． Therefore，the explanation for only tray 1 and 2 shall be given here．

## ［1］Composition


［2］Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Paper lift－up＊1 | Up：Driven by wires <br> Down：Falls down by its own <br> weight |
| Tray loading | Front loading |
| Double feed pre－ <br> vention | Torque limiter |
| 1st paper feed | Paper feed roller |
| No paper detec－ <br> tion | Photosensor＋Actuator |
| Paper size detec－ <br> tion＊2 <br> （Universal） | Width：VR <br> Length：Phtosensor＋Actu－ <br> ators（two） |
| 1st paper feed <br> paper loop mech－ <br> anism＊3 | Photosensor＋Actuator <br> ＋clutch |

## ＊1 Paper lift－up

a）Hoisting of up／down plate
Paper feed trays are driven by wires．When a paper tray is loaded，the tray up drive motor／ 1（M16）／2（M17）rotates to wind the wires around the drive pulleys and consequently the up／down plate in the tray moves up．When the tray upper limit PS／1（PS2）／2（PS8）detects the actuator of the roller that has been moved up by paper，the tray up drive motor／1（M16）／ 2 （M17）stops．

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec．2003 | $2-\mathrm{J}-1$ | ADDITION |

b) Lowering of tray

When the paper feed tray is pulled out, the coupling shaft of the tray is disengaged from the coupling gear of the tray up drive motor on the main body side, allowing the up/down plate in the tray to fall down by its own weight.


## *2 Paper size detection

Length: When paper pushes the paper size detection actuator, the paper size PS/2-1/2-2 (PS6/PS12) and the paper size PS/1-1/1-2 (PS5/PS11) turn ON. Thus, the paper size is automatically determined according to the combination of the ON/OFF states of these PSs.
Width: When the side guides of the tray are slid, the rack gear of the side guide (front) turns the paper size VR/1/2 gear. Thus, the paper size is automatically determined according to the change in the resistance value of the VR.

*3 First paper feed paper loop mechanism
When paper feed starts, paper is fed to the preregistration roller by the feed roller and paper feed rollers. The fed out paper operates the actuator of the paper feed PS/1 (PS1), the paper feed PS/2 (PS7) turning it ON. The feed and paper feed rollers remain ON for a specified time after the actuation of the paper feed PS/1 (PS1) and PS/2 (PS7) causing a paper loop to form against the pre-registration rollers which are not turning. In this way paper skew is corrected.


## [3] First Paper Feed Control



The 1st paper feed from tray $1 / 2$ takes place as the result of the transmission of the drive force from M1 (paper feed) to each paper feed roller by MC3/5 (paper feed MC/1/2) and MC4/6(pre-registration $\mathrm{MC} / 1 / 2$ ). The feed roller picks up paper using its own weight.
The above operations are controlled by the PRCB (printer control board). Related signals are PS1/7 (paper feed/1/2) and PS25/26 (vertical conveyance/1/2) issued from the vertical conveyance section.

1. Operation
a. Operation of the MC3/5 (paper feed MC/1/2)
(1) Start timing of printing of the first copy MC3/5 (paper feed MC/1/2) turns ON at the timing that is determined by the P counter from when copying starts, and turns OFF after a lapse of the specified time from PS1/7 (paper feed/1/7) turning OFF. Thus, paper skew is corrected by forming the loop before pre-registration roller.
(2) Start timing of printing of the second copy When the preceding paper turns OFF PS1/7.
(3) OFF timing When PS1/7 is turned ON.
b. Operation of the MC4/6 (pre-registration MC1/2)
(1) ON timing

After a specified time from MC3/5 (paper feed MC/1/2) turning ON.
(2) OFF timing

When PS1/7 (paper feed/1/2) is turned OFF.

## 2. Signals

a. PRCB input signals
(1) T1PRE_PS (PS1 to PRCB)

Paper passage detection signal (tray 1)
[L]: Detected.
[H]: Not detected.
(2) T2PRE_PS (PS7 to PRCB)

Paper passage detection signal (tray 2)
[L]: Detected.
[H]: Not detected.
b. PRCB output signals
(1) T1FEED_DRV (PRCB to MC3)

MC3 drive control signal (tray 1)
[L]: MC3 ON
[H]:MC3 OFF
(2) T1PREMC_DRV (PRCB to MC4)

MC4 drive control signal (tray 1)
[L]: MC4 ON
[H]:MC4 OFF
(3) T2FEED_DRV (PRCB to MC5)

MC5 drive control signal (tray 2)
[L]: MC5 ON
[H]:MC5 OFF
(4) T2PREMC_DRV (PRCB to MC6)

MC6 drive control signal (tray 2)
[L]: MC6 ON
[H]:MC6 OFF

## [4] Paper Up Drive Control



Paper stacked in the tray is pushed up by transmitting the drive force of M16/17 (tray up drive/ $1 / 2$ ) to the up/down plate in the tray via drive wires. M16/17 are controlled by the PRCB (printer control board). Related signals are PS2/ 8 (tray upper limit/1/2) and PS4/10 (remaining paper/1/2).

1. Operation
a. Paper up drive control

When tray $1 / 2$ is loaded, M16/17 (tray up drive/1/ 2) turns ON to lift the up/down plate in the tray. When PS2/8 (tray upper limit/1/2) detects the upper limit of paper as the paper up/down plate in the tray goes up, it turns ON and consequently M16/17 goes OFF, causing the tray to stop going up. When PS2/8 turns OFF after paper is fed, M16/17 goes ON again to move the paper up/ down plate upward. The up/down plate in the tray is lowered mechanically by its own weight.
b. Paper up drive timing
(1) ON timing

M16/17 (tray up drive/1/2) is turned ON when loading of a tray is detected. (by shorting wires at both ends of the drawer connector)
(2) OFF timing One of M16/17 (tray up drive/1/2) is turned OFF when PS2/8 (tray upper limit/1/2) is turned ON.
c. Remaining Paper Detection Control

The level of paper remaining in each tray is detected according to the time that M16/17 (tray up drive $/ 1 / 2$ ) requires to lift up the up/down plate when the tray is set. This lift-up time (operation time of M16/17) is saved in the PRCB (printer control board). After this, the remaining paper is detected using the paper feed counter. The detected remaining paper level is displayed on the operation panel in five steps. PS4/10 (remaining paper/1/2) are used to detect the remaining paper level when it lowers below about 10\%.
2. Signals
a. PRCB input signals
(1) T1UP_PS (PS2 to PRCB)

Paper upper limit detection signal (tray 1)
[L]: Not detected.
[H]: Detected.
(2) T1RM_PS (PS4 to PRCB)

Remaining paper detection signal (tray 1)
[L]: Not detected.
[H]: Detected.
(3) T2UP_PS (PS8 to PRCB)

Paper upper limit detection signal (tray 2)
[L]: Not detected.
[H]: Detected.
(4) T2RM_PS (PS10 to PRCB)

Remaining paper detection signal (tray 2)
[L]: Not detected.
[H]: Detected.
b. PRCB output signals
(1) T1RISEM_24V (PRCB to M16)

M16 ON/OFF control signal (tray 1)
(2) T2RISEM_24 (PRCB to M17)

M17 ON/OFF control signal (tray 2)
[5] Paper Size Detection Control


The paper size in tray $1 / 2$ is detected using PS5/ 6/11/12 (paper size/1-1/2-1/1-2/2-2), and VR1/2 (paper size/1/2). Based on the detection signals, the PRCB (printer control board) judges the paper size.

## 1. Operation

The length of paper is detected using PS5/6/11/ 12 (paper size/1-1/2-1/1-2/2-2) . Variable resistors (VR1/2) interlocked with the guide position are installed at the bottom of the tray to detect the width of paper.
The relationships between the sensors and paper sizes (lengths) are as follows:

| Paper size | $8.5 \times 11$ <br> or less | A4R to <br> B5R | F4 or <br> larger |
| :---: | :---: | :---: | :---: |
| PS55/11 | OFF | ON | ON |
| PS6/12 | OFF | OFF | ON |

2. Signals
a. PRCB input signals
(1) T1SIZE_S_PS (PS5 to PRCB)

Paper size detection signal (tray 1)
[L]: Paper does not exist.
[H]: Paper exists.
(2) T1SIZE_L_PS (PS6 to PRCB)

Paper size detection signal (tray 1)
[L]: Paper does not exist.
[H]: Paper exists.
(3) T2SIZE_L_PS (PS11 to PRCB)

Paper size detection signal (tray 2)
[L]: Paper does not exist.
[H]: Paper exists.
(4) T2SIZE_S_PS (PS12 to PRCB)

Paper size detection signal (tray 2)
[L]: Paper does not exist.
$[\mathrm{H}]$ :Paper exists.
(5) T1SIZE_VR (VR1 to PRCB) Paper width detection signal (tray 1)
(6) T2SIZE_VR (VR2 to PRCB)

Paper width detection signal (tray 2)

## [6] No Paper Detection Control



No paper in the tray is detected by PS3 (no paper/1) and PS9 (no paper/2) which are controlled by the PRCB (printer control board).

## 1. Operation

When the tray becomes empty, PS3/9 (no paper/ $1 / 2$ ) is turned OFF, displaying a message on the LCD via OB1 (operation board/1).
2. Signals
a. PRCB input signals
(1) T1_OPS (PS3 to PRCB)

No paper detection signal (tray 1)
[L]: Paper does not exist in tray.
[H]: Paper exists in tray.
(2) T2_OPS (PS9 to PRCB)

No paper detection signal (tray 2)
[L]: Paper does not exist in tray.
[H]: Paper exists in tray.

## TRAY 1/2 PAPER FEED UNIT (7255/7272)

## [1] Composition



Caution: Trays $1 / 2$ have the same mechanism.
[2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Paper lift-up *1 | Up: Driven by wires <br> Down: Falls down by its <br> own weight |
| Tray loading | Front loading |
| Double feed preven- <br> tion | Torque limiter |
| 1st paper feed | Paper feed roller |
| No paper detection | Photosensor + Actuator |
| 1st paper feed paper <br> loop mechanism*2 | Photosensor + Actuator <br> + clutch |
| Horizontal convey- <br> ance (Tray 1) | Horizontal conveyance <br> roller /L, /R |

## *1 Paper lift-up

a) Hoisting of up/down plate

Paper feed trays are driven by wires. When a paper tray is loaded, the tray up drive motor/ 1(M16)/2(M17) rotates to wind the wires around the drive pulleys and consequently the up/down plate in the tray moves up. When the tray upper limit PS/1(PS2)/2(PS8) detects the actuator of the roller that has been moved up by paper, the tray up drive motor/1(M16)/ 2 (M17) stops.

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b) Lowering of tray

When the paper feed tray is pulled out, the coupling shaft of the tray is disengaged from the coupling gear of the tray up drive motor on the main body side, allowing the up/down plate in the tray to fall down by its own weight.


## *2 First paper feed paper loop mechanism

When paper feed starts, paper is fed to the preregistration roller by the feed roller and paper feed rollers. The fed out paper operates the actuator of the paper feed PS/1 (PS1), the paper feed PS/2 (PS7) turning it ON. The feed and paper feed rollers remain ON for a specified time after the actuation of the paper feed PS/1 (PS1) and PS/2 (PS7) causing a paper loop to form against the pre-registration rollers which are not turning. In this way paper skew is corrected.


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## [3] First Paper Feed Control



The 1st paper feed from tray $1 / 2$ takes place as the result of the transmission of the drive force from M1 (paper feed) to each paper feed roller by MC3/5 (paper feed MC/1/2) and MC4/6(pre-registration $\mathrm{MC} / 1 / 2$ ). The feed roller picks up paper using its own weight.
The above operations are controlled by the PRCB (printer control board). Related signals are PS1/7 (paper feed/1/2) and PS25/26 (vertical conveyance/1/2) issued from the vertical conveyance section.

1. Operation
a. Operation of the MC3/5 (paper feed MC/1/2)
(1) Start timing of printing of the first copy

MC3/5 (paper feed MC/1/2) turns ON at the timing that is determined by the $P$ counter from when copying starts, and turns OFF after a lapse of the specified time from PS1/7 (paper feed/1/7) turning OFF. Thus, paper skew is corrected by forming the loop before pre-registration roller.
(2) Start timing of printing of the second copy When the preceding paper turns OFF PS1/7.
(3) OFF timing When PS1/7 is turned ON.
b. Operation of the MC4/6 (pre-registration MC1/2)
(1) ON timing

After a specified time from MC3/5 (paper feed MC/1/2) turning ON .
(2) OFF timing

When PS1/7 (paper feed/1/2) is turned OFF.

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## 2. Signals

a. PRCB input signals
(1) T1PRE_PS (PS1 to PRCB)

Paper passage detection signal (tray 1)
[L]: Detected.
$[\mathrm{H}]$ : Not detected.
(2) T2PRE_PS (PS7 to PRCB)

Paper passage detection signal (tray 2)
[L]: Detected.
$[\mathrm{H}]$ : Not detected.
b. PRCB output signals
(1) T1FEED_DRV (PRCB to MC3)

MC3 drive control signal (tray 1)
[L]: MC3 ON
[H]:MC3 OFF
(2) T1PREMC_DRV (PRCB to MC4)

MC4 drive control signal (tray 1)
[L]: MC4 ON
[H]:MC4 OFF
(3) T2FEED_DRV (PRCB to MC5)

MC5 drive control signal (tray 2)
[L]: MC5 ON
[H]:MC5 OFF
(4) T2PREMC_DRV (PRCB to MC6)

MC6 drive control signal (tray 2)
[L]: MC6 ON
[H]:MC6 OFF

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## [4] Horizontal Conveyance Control (Tray 1)

(2)

The horizontal conveyance from Tray 1 is conducted by transmitting the drive force of M1 (paper feed) to the horizontal conveyance roller /L and horizontal conveyance roller / R via MC15 (horizontal conveyance MC/L) and MC16 (horizontal conveyance MC/R).

The above operations are controlled by PRCB (printer control board). Related signals are PS1 (feed /1), PS5 (horizontal conveyance /L) and PS6 (horizontal conveyance /R).

1. Operation
a. Operation of MC15 (horizontal conveyance MC/L)
4 (1) ON timing for the first paper
When the restart of MC3 (feed MC/1) is turned ON .
(2) ON timing for the second paper

After a specified time when MC1 (registration MC ) is turned ON.
(3) OFF timing After a specified time when PS44 (registration) is turned ON .
b. Operation of MC16 (horizontal conveyance MC/R)
(1) ON timing for the first paper After a specified time when PS6 (horizontal conveyance $/ R$ ) is turned ON.
(2) ON timing for the second paper After a specified time when MC1 (registration MC ) is turned ON .
(3) OFF timing

After a specified time when PS6 (horizontal conveyance $/ R$ ) is turned ON .

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## 2. Signal

a. PRCB input signal
(1) HFPS_L (PS5 to PRCB)

Paper passage detection signal
[L]: Detected.
[H]: Not detected
(2) HFPS_R (PS6 to PRCB)

Paper passage detection signal
[L]: Detected.
$[\mathrm{H}]$ : Not detected
b. PRCB output signal
(1) HFMC_L (PRCB to MC15)

MC15 drive control signal
[L]: MC15 ON
[H]: MC15 OFF
(2) HFMC _R (PRCB to MC16)

MC16 drive control signal
[L]: MC16 ON
[H]: MC16 OFF

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## [5] Paper Up Drive Control



Paper stacked in the tray is pushed up by transmitting the drive force of M16/17 (tray up drive/ $1 / 2$ ) to the up/down plate in the tray via drive wires. M16/17 are controlled by the PRCB (printer control board). Related signals are PS2/ 8 (tray upper limit/1/2) and PS4/10 (remaining paper/1/2).

1. Operation
a. Paper up drive control

When tray $1 / 2$ is loaded, M16/17 (tray up drive/1/ 2) turns ON to lift the up/down plate in the tray. When PS2/8 (tray upper limit/1/2) detects the upper limit of paper as the paper up/down plate in the tray goes up, it turns ON and consequently M16/17 goes OFF, causing the tray to stop going up. When PS2/8 turns OFF after paper is fed, M16/17 goes ON again to move the paper up/ down plate upward. The up/down plate in the tray is lowered mechanically by its own weight.
b. Paper up drive timing
(1) ON timing

M16/17 (tray up drive/1/2) is turned ON when loading of a tray is detected. (by shorting wires at both ends of the drawer connector)
(2) OFF timing

One of M16/17 (tray up drive/1/2) is turned OFF when PS2/8 (tray upper limit/1/2) is turned ON.
c. Remaining Paper Detection Control

The level of paper remaining in each tray is detected according to the time that M16/17 (tray up drive $/ 1 / 2$ ) requires to lift up the up/down plate when the tray is set. This lift-up time (operation time of M16/17) is saved in the PRCB (printer control board). After this, the remaining paper is detected using the paper feed counter. The detected remaining paper level is displayed on the operation panel in five steps. PS4/10 (remaining paper/1/2) are used to detect the remaining paper level when it lowers below about $10 \%$.

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2. Signals
a. PRCB input signals
(1) T1UP_PS (PS2 to PRCB)

Paper upper limit detection signal (tray 1)
[L]: Not detected.
$[\mathrm{H}]$ : Detected.
(2) T1RM_PS (PS4 to PRCB)

Remaining paper detection signal (tray 1)
[L]: Not detected.
[ H$]$ : Detected.
(3) T1UP_PS (PS8 to PRCB)

Paper upper limit detection signal (tray 2)
[L]: Not detected.
[ H$]$ : Detected.
(4) T1RM_PS (PS10 to PRCB)

Remaining paper detection signal (tray 2)
[L]: Not detected.
[ H ]: Detected.
b. PRCB output signals
(1) T1RISEM_24V (PRCB to M16) M16 ON/OFF control signal (tray 1)
(2) T2RISEM_24 (PRCB to M17) M17 ON/OFF control signal (tray 2)

## [6] No Paper Detection Control



No paper in the tray is detected by PS3 (no paper /1) and PS9 (no paper/2), and which is controlled

1. Operation

When the tray becomes empty, PS3/9 (no paper/ $1 / 2$ ) is turned OFF, displaying a message on the LCD via OB1 (operation board/1).
2. Signals
a. PRCB input signals
(1) $\mathrm{T} 1 \_0 \mathrm{PS}$ (PS3 to PRCB)

No paper detection signal (tray 1)
[L]: Paper does not exist in tray.
[H]: Paper exists in tray.
(2) T2_0PS (PS9 to PRCB)

No paper detection signal (tray 2)
[L]: Paper does not exist in tray.
[H]:Paper exists in tray.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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## TRAY 3 PAPER FEED UNIT (7155/7165)

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Paper lift-up *1 | Up: Driven by wires <br> Down: Falls down by its own <br> weight |
| Tray loading | Front loading |
| Double feed pre- <br> vention | Torque limiter |
| 1st paper feed | Paper feed roller |
| No paper detec- <br> tion | Photosensor + Actuator |
| Paper size detec-- <br> tion *2 <br> (Universal) | Width: VR <br> Length: Photosensor <br> + Actuators (two) |
| 1st paper feed <br> paper loop mech- <br> anism*3 | Photosensor + Actuator <br> + Magnetic clutch |

## *1 Paper lift-up

a) Hoisting of up/down plate

Paper feed tray is driven by wires. When the paper tray is loaded, the tray up drive motor 3 (M18) rotates to wind the wires around the drive pulleys and consequently the up/down plate in the tray moves up. When the tray upper limit PS/3 (PS14) detects the actuator of the roller that has been moved up by paper, the tray up drive motor 3 (M18) stops.
b) Lowering of tray

When the paper feed tray is pulled out, the coupling shaft of the tray is disengaged from the coupling gear of the tray up drive motor on the main body side, allowing the up/down plate in the tray to fall down by its own weight.


## *2 Paper size detection

Length: When paper pushes the paper size detection actuator, the paper size PS/23/ (PS18) and the paper size PS/1-3 (PS17) turns ON. Thus, the paper size is automatically determined according to the combination of the ON/OFF states of this PS.
Width: When the side guides of the tray are slid, the rack gear of the side guide (front) turns the paper size VR3 gear. Thus, the paper size is automatically determined according to the change in the resistance value of the VR.

*3 First paper feed paper loop mechanism
When paper feed starts, paper is fed to the preregistration roller by the feed roller and paper feed rollers. The fed out paper operates the actuator of the paper feed PS/3 (PS13), turning it ON. The feed and paper feed rollers remain ON for a specified time after the actuation of the paper feed PS/3 (PS13) causing a paper loop to form against the pre-registration rollers which are not turning. In this way paper skew is corrected.


## [3] First Paper Feed Control



The 1st paper feed from tray 3 takes place as the result of the transmission of the drive force from M1 (paper feed) to each paper feed roller by MC7 (paper feed MC/3) and MC8 (pre-registration $\mathrm{MC} / 3$ ). The feed roller picks up paper using its own weight.
The above operations are controlled by the PRCB (printer control board). Related signals are PS13 (paper feed/3) and PS27 (vertical conveyance/3) issued from the vertical conveyance section.

1. Operation
a. Operation of the MC7 (paper feed MC/3)
(1) Start timing of printing of the first copy MC7 (paper feed MC/3) turns ON at the timing that is determined by the P counter from when copying starts, and turns OFF after a lapse of the specified time from PS13 (paper feed/3) turning OFF. Thus, paper skew is corrected by forming the loop before pre-registration roller.
(2) Start timing of printing of the second copy When the preceding paper turns OFF PS13.
(3) OFF timing

When PS13 is turned ON.
b. Operating of the MC8 (pre-registration MC/3)
(1) ON timing

After a specified time from the MC7 (paper feed MC/5).
(2) OFF timing

When PS13 (paper feed/3) is turned OFF.

## 2. Signals

a. PRCB input signals
(1) T3PREM_PS (PS13 to PRCB)

Paper passage detection signal (tray 3)
[L]: Detected.
$[\mathrm{H}]$ : Not detected.
b. PRCB output signals
(1) T3FEED_DRV (PRCB to MC7)

MC7 drive control signal (tray 3)
[L]: MC7 ON
[H]:MC7 OFF
(2) T3PREM_PS (PRCB to MC8)

MC8 drive control signal (tray 3)
[L]: MC8 ON
[H]:MC8 OFF

## [4] Paper Up Drive Control



Paper stacked in the tray is pushed up by transmitting the drive force of M18 (tray up drive/3) to the up/down plate in the tray via drive wires. M18 is controlled by the PRCB (printer control board). Related signals are PS14 (tray upper limit/3) and PS16 (remaining paper/3).

## 1. Operation

a. Paper up drive control

When tray 3 is loaded, M18 (tray up drive/3) turns ON to lift the up/down plate in the tray. When PS14 (tray upper limit/3) detects the upper limit of paper as the paper up/down plate in the tray goes up, it turns ON and consequently M18 goes OFF, causing the tray to stop going up. When PS14 turns OFF after paper is fed, M18 goes ON again to move the paper up/down plate upward. The up/down plate in the tray is lowered mechanically by its own weight.
b. Paper up drive timing
(1) ON timing M18 (tray up drive $/ 3$ ) is turned ON when loading of a tray is detected. (by shorting wires at both ends of the drawer connector)
(2) OFF timing M18 (tray up drive/3) is turned OFF when PS14 (tray upper limit/3) is turned ON.
c. Remaining Paper Detection Control

The level of paper remaining in the tray is detected according to the time that M18 (tray up drive/3) requires to lift up the up/down plate when the tray is set. This lift-up time (operation time of M18) is saved in the PRCB (printer control board). After this, the remaining paper is detected using the paper feed counter. The detected remaining paper level is displayed on the operation panel in five steps. PS16 (remaining paper/3) is used to detect the remaining paper level when it lowers below about 10\%.
2. Signals
a. PRCB input signals
(1) T3UP_PS (PS14 to PRCB)

Paper upper limit detection signal
[L]: Not detected.
[H]: Detected.
(2) T3RM_PS (PS16 to PRCB)

Remaining paper detection signal
[L]: Not detected.
[H]: Detected.
b. PRCB output signals
(1) T3RISEM_24 (PRCB to M18) M18 ON/OFF control signal
[5] Paper Size Detection Control


The paper size in tray 3 is detected using PS17 (paper size/1-3), PS18 (paper size/2-3), and VR3 (paper size/3). Based on the detection signals, the PRCB (printer control board) judges the paper size.

## 1. Operation

The length of paper is detected using PS17/18 (paper size/1-3/2-3). Variable resistor (VR3) interlocked with the guide position is installed at the bottom of the tray to detect the width of paper. The relationships between the sensors and paper sizes (lengths) are as follows:

| Paper size | $8.5 \times 11$ <br> or less | A4R to <br> B5R | F4 or <br> larger |
| :---: | :---: | :---: | :---: |
| Pensor | OFF | ON | ON |
| PS18 | OFF | OFF | ON |

2. Signals
a. PRCB input signals
(1) T3SIZE_S_PS (PS17 to PRCB)

Paper size detection signal
[L]: Paper does not exist.
$[\mathrm{H}]$ : Paper exists.
(2) T3SIZE_L_PS (PS18 to PRCB)

Paper size detection signal
[L]: Paper does not exist.
$[\mathrm{H}]$ : Paper exists.
(3) T3SIZE_VR (VR3 to PRCB) Paper width detection signal
[6] No Paper Detection Control


No paper in the tray is detected by PS15 (no paper/3), and which is controlled by the PRCB (printer control board).

## 1. Operation

When the tray becomes empty, PS15 (no paper/ 3 ) is turned OFF, displaying a message on the LCD via OB1 (operation board/1).
2. Signals
a. PRCB input signals
(1) PS15 (PS15 to PRCB)

No paper detection signal
[L]: Paper does not exist in tray.
[H]: Paper exists in tray.

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## BYPASS TRAY

## [1] Composition


[2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| First paper feed | Bypass feed roller |
| Paper lift-up *1 | Paper up/down plate <br> Up/down motor/BP <br> (M20) + Upper/lower limit <br> detection sensor |
| Double feed preven- <br> tion | Torque limiter |
| No paper detection | Photosensor + Actuator |
| Paper size detection <br> *2 | Width: VR <br> Length: Photosensor + <br> Actuators (two) |

## *1 Paper lift-up

The up/down motor/BP (M20) drives the paper up/down plate via gears. Paper is automatically pushed up to the paper feed position, when the print start button is pressed. When paper is removed or exhausted M20 will drive down the up/down plate.


## *2 Paper size detection

The paper size is automatically detected by the following three sensors:

- Lateral: Paper size detection VR/BP (VR5)
- Longitudinal: Paper size PS/1, 2-BP (PS31/ 32)



## [3] First Paper Feed Control



The first paper feed from the bypass tray takes place as the result of the transmission of the drive force from M6 (loop roller) to the paper feed roller. M6 is controlled by PRCB (printer control board). The related signal is PS36 (loop).

## 1. Operation

(1) When printing of the first copy starts M6 (loop) is turned ON at the timing that is determined by the P counter (that starts when printing starts), thus starting feed of paper.
M6 is stopped temporarily after lapse of a specified time from turning ON of PS44 (registration) by the leading edge of paper, a loop is formed by registration rollers, and the paper is fed to the transfer unit.
(2) When printing of the second or subsequent copy After lapse of the specified time from turning OFF of PS44 (registration) by the trailing edge of the preceding paper.
2. Signals
a. PRCB input signals
(1) LOOP_PS (PS36 to PRCB)

Paper passage detection signal
[L]: Paper does not exist.
$[H]$ : Paper exist.
(2) 2ND_PS (PS44 to PRCB)

Second paper feed reference timing detection signal
[L]: Paper exists.
$[H]$ : Paper does not exist.
b. PRCB output signals
(1) A and /A (PRCB to M6)

A-phase drive control pulse signal for M6
(2) B and /B (PRCB to M6)

B-phase drive control pulse signal for M6

## [4] Paper Up/Down Control



Paper in the bypass tray is pushed up/down by M20 (up/down motor/BP). M20 is controlled by PRCB (printer control board). Related signals are PS34 (tray upper limit/BP) and PS35 (tray lower limit/BP).

## 1. Operation

a. Paper up/down control

M20 (up/down motor/BP) is turned ON to push up paper. When PS34 (tray upper limit/BP) detects the paper upper limit and turns ON, M20 turns OFF to stop pushing up paper. When paper is fed and consequently PS34 turns OFF, M20 turns ON again, maintaining the upper limit position of paper.
b. Paper up timing
(1) ON timing At start of copying
(2) OFF timing

M20 (up/down motor/BP) is turned OFF when PS34 (tray upper limit/BP) is turned ON.
c. Paper down timing
(1) ON timing

When there is no paper or a paper jam occurs.
(2) OFF timing

M20 (up/down motor/BP) is turned OFF when PS35 (tray lower limit/BP) is turned ON.

## 2. Signals

a. PRCB input signals
(1) BPUP_PS (PS34 to PRCB)

Paper upper limit position detection signal (bypass tray)
[L]: Not detected.
[H]: Detected.
(2) BPDN_PS (PS35 to PRCB)

Paper lower limit position detection signal (bypass tray)
[L]: Not detected.
[H]: Detected.
b. PRCB output signal
(1) BPUDM_A, B (PRCB to M20)

M20 drive control signal
[5] Paper Size Detection Control


The size of paper in the by-pass tray is detected by PS31 (paper size/1-BP), PS32 (paper size/2BP), and VR5 (paper size/BP). Based on the detection signals, PRCB (printer control board) judges the paper size.

1. Operation

The length of paper is detected by PS31 (paper size/1-BP) and PS32 (paper size/2-BP). The bypass tray is provided with a variable resistor (VR5) interlocked with the guide position to judge the paper width according to the change in the resistance value.
The relationships between the sensors and paper sizes (lengths) are as follows:

$\left.$| Pensor |
| :---: | :---: | :---: | :---: | | $8.5 \times 11$ |
| :---: |
| or less | | A4R to |
| :---: |
| B5R |$\quad$| F4 or |
| :---: |
| larger | \right\rvert\, | OF31 | OFF | ON |
| :---: | :---: | :---: |
| ON |  |  |
| PS32 | OFF | OFF |
| ON |  |  |

2. Signals
a. PRCB input signals
(1) BPSIZE_S_PS (PS31 to PRCB)

Paper size detection signal
[L]: Paper does not exist.
[H]: Paper exists.
(2) BPSIZE_L_PS (PS32 to PRCB)

Paper size detection signal
[L]: Paper does not exist.
[H]: Paper exists.
(3) BPSIZE_VR (VR5 to PRCB)

Paper width detection signal

## [6] No Paper Detection Control



No paper in the tray is detected by PS33 (no paper/BP) which is controlled by PRCB (printer control board).

1. Operation

When the tray becomes empty, PS33 (no paper/ BP ) is turned OFF, displaying a message on the LCD via OB1 (operation board/1).
2. Signal
a. Input signal
(1) BP_OPS (PS33 to PRCB)

No paper detection signal
[L]: Paper does not exist. $[\mathrm{H}]$ : Paper exists.

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## VERTICAL CONVEYANCE SECTION

## 4 [1] Composition



## 4. [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Paper conveyance | Rollers |
| Conveyance drive | Vertical conveyance roller |
|  | (upper): Paper feed motor |
|  | (M1) |
|  | Vertical conveyance roller |
|  | (middle): Paperfeed motor |
|  | (M1) |
|  | Vertical conveyance roller |
|  | (lower): Paper feed motor |
|  | (M1) |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $2-M-1$ | REPLACEMENT |

[3] Vertical Conveyance Control


In the vertical conveyance section, paper is fed vertically by transmitting the drive force of M1 (paper feed) to the vertical conveyance roller (upper) and vertical conveyance roller (middle) via MC11 (vertical conveyance MC/1) and MC12 (vertical conveyance $\mathrm{MC} / 2$ ). And, the vertical conveyance roller (lower) is driven by the vertical conveyance roller (middle) via the timing belt. The above parts are controlled by PRCB (printer control board). Related signals are PS25 to PS28 (vertical conveyance/1 to 3), PS29 (vertical conveyance door open/close) and PS12 (vertical conveyance door open/close/U).

## 1. Operation

4 Paper fed from tray 1 ( $7155 / 7165$ ) or tray 1 or 2 (7255/7272) is then fed to the second paper feed unit directly without passing through vertical conveyance rollers. When paper is fed from tray 2 or 3 (7155/7165) or tray 3 or 4 (7255/7272), PS26 (vertical conveyance/2) is used to feed paper to the standby position. When PS26 is turned OFF by the preceding paper, MC11 and MC12 (vertical conveyance $\mathrm{MC} / 1$ and $\mathrm{MC} / 2$ ) are turned ON and the paper fed from tray 2 or 3 (7155/7165) or tray 3 or 4 (7255/7272) is fed to the standby position (where PS26 was turned ON) by the drive force of M1 (paper feed). MC11 and MC12 are turned ON after lapse of the specified time from restart of registration of the preceding paper to
rotate all vertical conveyance rollers, thus feeding paper to the second paper unit.
The paper feed standby position for tray 4 is set to the position where the PS28 (vertical conveyance /4) is turned ON. (7255/7272)

## 2. Signals

a. PRCB input signals
(1) T1PASS_PS (PS25 to PRCB)

Paper passage detection signal (for tray 1)
[L]: Not detected.
$[\mathrm{H}]$ : Detected.
(2) T2PASS_PS (PS26 to PRCB)

Paper passage detection signal (for tray 2)
[L]: Not detected.
[ H$]$ : Detected.
(3) T3PASS_PS (PS27 to PRCB)

Paper passage detection signal (for tray 3)
[L]: Not detected.
[ H$]$ : Detected.
(4) T4PASS_PS (PS28 to PRCB)

Paper passage detection signal (for tray 4)
[L]: Not detected.
[ H$]$ : Detected.
(5) VF_DOOR_PS (PS29 to PRCB)

Vertical conveyance section open/close detec-
tion signal
[L]: Open
[H]: Closed
(6) VF_DRT_PS (PS12 to PRCB)

Vertical conveyance section open/close detection signal
[L]: Open
[H]: Closed
b. PRCB output signals
(1) VFMC1_DRV (PRCB to MC11)

MC11 drive control signal
[L]: MC11 ON
[H]:MC11 OFF
(2) VFMC2_DRV (PRCB to MC12)

MC12 drive control signal
[L]: MC12 ON
[H]:MC12 OFF

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## ADU

## [1] Composition



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## [2] Mechanisms

| Mechanisms | Method |
| :---: | :---: |
| Second paper feed paper loop *1 | Loop roller (trays 1-3/LCT), Feedroller (bypass tray), ADU pre-registration roller (ADU) |
| Image position correction *2 | Image position is corrected according to the information detected by PS43 (leading edge) and PS70 (paper miscentering). |
| Second paper feed auxiliary mechanism *3 | Pre-transfer roller |
| Second paper feed paper conveyance | Conveyance motor (M5) drive |
| Second paper feed jam removal mechanism | Opening/closing of jam removal section of pre-transfer section, Registration roller rotation knob |
| Conveyance section paper conveyance | Conveyance belts (two) |
| Conveyance section paper suction mechanism *4 | Conveyance suction fan (FM3) + Suction duct |
| Reverse/exit section paper path selection *5 | Reverse/exit selection gate, Reverse gate SD (SD7) drive paper is automatically guided owing to the paper guide shape. |
| Reverse/exit section paper conveyance | Reverse/exit roller, ADU reverse roller |
| Reverse/exit section paper conveyance drive | Reverse/exit motor (M8) drive, ADU reverse motor (M9) drive |
| Reverse/exit section jam removal mechanism | Paper exit guide plate opening/closing, ADU bottom plate assembly opening/closing, Reverse/exit roller rotation knob |
| Paper exit section jam removal mechanism | Paper exit roller rotation knob |
| Paper exit conveyance | Paper exit motor (M7) drive |
| ADU paper feed *6 | Nonstack |
| ADU reverse paper conveyance path selection | Paper is automatically guided owing to ADU gate operation and the paper guide shape. |
| ADU paper conveyance | ADU reverse roller, ADU conveyance rollers 1 and 2 |
| ADU pre-registration mechanism *7 | ADU pre-registration roller, ADUconveyance rollers 3 and 4 |
| Thick paper conveyance *8 | Conveyance motor (M5), Paper exit motor (M7), reverse/ exit motor (M8), ADU reverse motor (M9), linear velocity selection |
| ADU paper conveyance drive | Conveyance motor (M5), reverse/exit motor (M8), ADU reverse motor (M9), loop roller motor (M6) |
| ADU jam removal mechanism | ADU bottom plate assembly opening/closing, Exit guide plate opening/closing |

## *1 Second paper feed paper loop mechanism

A paper loop is formed before the registration roller to correct mis-centering of paper during second paper feed. The paper loop is formed by pushing the fed paper against the registration roller for the prescribed time. The paper loop mechanism differs between paper feed paths.

- Trays 1-3, LCT paper feed

Loop roller

- Bypass tray

Bypass feed roller

- ADU

ADU pre-registration roller

*2 Image position correction
A leading edge PS (PS43) and paper mis-centering PS (PS70) are provided at the exit of the registration roller, thus enhancing the positional accuracy of the copy image.
The paper position information detected by PS43 and PS70 is processed by the image processor to correct the image write position in such a manner that the document (scanned image) position match the copy paper position.
The leading edge PS (PS43) is used to correct the write position in the sub-scanning direction,
and the mis-centering PS (PS70) is used to correct the write position in the main scanning direction.
*3 Second paper feed auxiliary mechanism
The distance between the registration roller and the transfer and separation corona unit is made long to achieve the time required for correcting the image position. To assist conveyance of paper between the registration roller and the image transfer and separation corona unit, a pretransfer roller is provided just before the transfer and separation corona unit.

*4 Conveyance section paper suction mechanism
A paper suction duct is provided in the middle of the conveyance section and is led to the conveyance suction fan (FM3) installed in the ADU. To improve transportability of the paper that passes through the conveyance section, the conveyance suction fan is used to provide suction for the paper.

*5 Reverse/exit paper path selection
The reverse/exit selection gate in the fixing unit determines whether the paper is to be ejected straight or reversed and ejected. The paper gate is operated by the reverse gate SD (SD7) installed in the ADU.
Because paper is reversed in the reverse/exit section in the ADU, the reverse/exit section is provided with a reverse/exit gate to switch between the forward and backward paper conveyance paths. This gate has no drive mechanism and it is opened by the rigidity of the paper.
a. Reverse/exit operation

Normally, the reverse/exit selection gate opens when the reverse gate SD (SD7) is turned OFF. The paper fed by the exit roller in the fixing unit is fed, through the path under the reverse/exit selection gate, to the reverse/exit section in the ADU by the decurler roller. Normally, the reverse/exit gate in the reverse/exit section is closed. This gate is opened by the rigidity of the fed paper, allowing the paper to be fed to the reverse/exit roller, ADU gate, and ADU reverse roller sequentially. Normally, the ADU gate is closed and it has no drive mechanism; it is opened by the rigidity of paper.
When the paper reverse PS (PS42) detects the trailing edge of paper and consequently turns OFF, the reverse/exit roller and ADU reverse roller start rotating in the opposite direction, feeding the paper back toward the fixing unit. However, since the reverse/exit gate is closed, the paper is fed to the main body exit roller via the path outside this gate. Thus, the paper is ejected with the print side down.


## b. Straight ejection

When paper is ejected straight, the reverse gate SD (SD7) is turned ON to close the reverse/exit selection gate. The paper fed by the paper exit roller is fed to the paper exit roller with the print side up.


2 UNIT EXPLANATION

## c. ADU paper conveyance

In the two-sided copy mode, the paper finished with printing on the front side is fed, through the path under the reverse/exit selection gate, into the reverse/exit section just like the reverse/exit operation. Then, the paper is fed to the ADU by the reverse/exit roller and ADU reverse roller. These rollers do not rotate in the opposite direction even when the paper reverse PS (PS42) detects the trailing edge of the paper, allowing the paper to be fed until the reverse/exit PS (PS46) turns OFF.


## *6 Non-stack paper feed mechanism

In the two-sided copy mode, the ADU reverse roller starts rotating in the opposite direction when the reverse/exit PS (PS46) detects the trailing edge of paper and consequently it turns

OFF. The paper is fed toward the reverse/exit section. However, since the ADU gate is closed, the paper is fed to the ADU conveyance roller/1 through the path above this gate. Thus, the paper is reversed and fed to the ADU exit, without being stacked in the ADU.
The reversed paper is fed by ADU conveyance rollers 1-4.


## *7 ADU pre-registration mechanism

In the ADU, paper is looped by the ADU pre-registration roller to correct paper inclination in the conveyance section. The ADU pre-registration roller stops when the loop roller motor (M6) stops; however, the ADU conveyance roller continues to feed paper at a constant speed, forming a paper loop between the ADU pre-registration roller and ADU conveyance roller. As a result, paper inclination is corrected. When M6 starts, the ADU pre-registration roller starts rotating to feed the paper to the second feed section. An ADU conveyance MC (MC13) is provided to turn ON/OFF the drive force of ADU conveyance rollers 1 and 2 in order to stop the looped paper temporarily and to adjust the loop size. In addition, an ADU deceleration MC (MC2) is provided to turn ON/OFF the drive force of ADU conveyance
rollers 3 and 4. The ADU conveyance MC (MC13) is turned ON/OFF only when the paper length is 325 mm or longer. If the paper length is less than 325 mm , it stays ON during copying.

*8 Thick paper conveyance mechanism
To enhance reliability of thick paper copying, the conveyance motor (M5), paper exit motor (M7), reverse/exit motor (M8), and ADU reverse motor (M9) are switched as shown below according to the paper type selected in the key operator mode.

4 | Paper type | Linear speed |
| :---: | :---: |
| Thick paper | $185 \mathrm{~mm} / \mathrm{s}(7155 / 7165)$ |
|  | $172.5 \mathrm{~mm} / \mathrm{s}(7255 / 7272)$ |
| Others | $280 \mathrm{~mm} / \mathrm{s}(7155 / 7255)$ |
|  | $320 \mathrm{~mm} / \mathrm{s}(7165)$ |
|  | $345 \mathrm{~mm} / \mathrm{s}(7272)$ |

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## [3] Loop/Second Paper Feed Control



The paper fed from each tray is fed to the second paper feed section. The second paper feed takes place as the result of the transmission of the drive force from M5 (conveyance) to the second paper feed roller via MC1 (registration). The second paper feed section is preceded by a loop roller used to form a paper loop, and this conveyance section is also used for the paper fed from the LCT. It is not used for the paper fed from the bypass tray or ADU. The loop roller is driven by M6 (loop roller). The above parts are controlled by PRCB (printer control board) via ADUDB (ADU drive board). M6 is driven by PRCB directly. Related signals are PS36 (loop), PS43 (leading edge), PS44 (registration), and PS50 (ADU preregistration).

## 1. Operation

a. Loop control

After a lapse of the specified time from turning ON of PS44 (registration) by the paper fed from each tray or the ADU at a high speed, M6 (loop roller) is turned OFF to form a paper loop in the registration section.
b. Second paper feed control

After formation of a paper loop under loop control, MC1 (registration) is turned ON to transmit the drive force of M 5 (conveyance) to the second paper feed roller, starting the second paper feed.
c. Image position correction control

Mis-centering of the paper fed from each tray is detected by PS70 (paper mis-centering) and the paper leading edge timing is detected by PS43 (leading edge) and they are corrected at the time of image write.

A contact image sensor is used as PS70 (paper mis-centering). The paper edge position is detected by paper mis-centering sensors. Based on the edge position information, the image write position is shifted to correct mis-centering and leading edge timing at the time of image write. PS70 operates after a lapse of the specified time from turning ON of PS43 (leading edge).
2. Signals
a. Input signals
(1) LOOP_PS (P36 to PRCB)

Loop formation reference timing detection signal.
The leading edge or trailing edge of paper is detected.
[L]: Detected.
[H]: Not detected.
(2) LD (M5 to ADUDB)

M5 fault detection signal
[L]: Normal
[H]: Abnormal
(3) DEF_VIDEO (PS70 to ADUDB)

PS70 (paper mis-centering) sensor output signal
(4) 2ND_PS (PS44 to ADUDB)

Second paper feed reference timing detection
signal
[L]: Detected.
[H]: Not detected.
(5) EDGF_PS (PS43 to ADUDB)

Paper leading edge detection signal
[L]: Detected.
[H]: Not detected.
(6) REG_PS (ADUDB to PRCB)

Paper leading edge detection signal.
[L]: Detected.
[H]: Not detected.
b. Output signals
(1) START/STOP (ADUDB to M5)

M5 (conveyance) drive control signal
[L]: M5 ON
[H]: M5 OFF
(2) 2NDM_CLK, CLK (PRCB to ADUDB to M5)

M5 (conveyance) clock signal
(3) 2ND_MC (ADUDB to MC1)

MC1 (registration) drive control signal
[L]: MC1 ON
[H]: MC1 OFF
(4) DEF_SI (ADUDB to PS70)

PS70 (paper mis-centering) start pulse
(5) DEF_CLK (ADUDB to PS70) PS70 (paper mis-centering) drive clock signal
(6) DEF_LED (ADUDB to PS70) PS70 (paper mis-centering) LED control signal
(7) CW/CCW (ADUDB to M5) M5 (conveyance) rotational direction indication signal
[L]: CCW
[H]: CW
(8) $\mathrm{H} / \mathrm{L}$ (ADUDB to M5) M5 (conveyance) rotational speed indication signal
[L]: Low speed
[H]: High speed
(9) $\mathrm{A}, / \mathrm{A}(\mathrm{PRCB}$ to M 6$)$

M6 (loop roller) A-phase drive control pulse signal
(10) B, /B (PRCB to M6)

M6 (loop roller) B-phase drive control pulse signal

## [4] Paper Conveyance Control



The paper fed from the second paper feed section is fed to the fixing unit by the pre-transfer roller and conveyance belt driven by M5 (conveyance). In the conveyance section, paper suction is provided by FM3 (conveyance suction) through the duct installed on the back of the conveyance belt. M5 and FM3 are controlled by PRCB (printer control board) via ADUDB (ADU drive board).

1. Operation
a. M5 (conveyance) operation

M5 (conveyance) starts when the START button is pressed, and it stops when the PS37 (paper exit) turns OFF at detection of the trailing edge of the last sheet of paper.
b. FM3 (conveyance suction) operation

FM3 is turned ON/OFF in sync with M2 (drum).
2. Signals
a. Input signals
(1) MAINEXIT_PS (PS37 to PRCB)

Main body exit section paper passage detection signal
[L]: Detected.
[H]: Not detected.
(2) SUC_EM (FM3 to ADUSDB)

FM3 (conveyance suction) fault detection signal [L]: FM3 is normal.
[ H$]$ : FM3 is abnormal.
b. Output signal
(1) MAINEXIT_PS (ADUDB to FM3)

FM3 (conveyance suction) drive signal
[L]: FM3 OFF
[H]: FM3 ON

## [5] Paper Reverse and Exit Control



The reserve/exit selection gate in the fixing unit determines whether the paper fed from the fixing unit is to be ejected straight or reversed.
The reverse/exit selection gate is driven by SD7 (reverse gate). The decurler roller is driven by M4 (fixing) and the reverse/exit roller is driven by M8 (reverse/exit). The ADU reverse roller is drivenby M9 (ADU reverse). The exit conveyance roller and main body exit roller are driven by M7 (paper exit).

M4 and M7 are controlled by PRCB (printer control board) directly. M8, M9, and SD7 are controlled by PRCB (printer control board) via ADUDB (ADU drive board).
Related signals are PS30 (fixing exit), PS37 (paper exit), and PS42 (paper reverse).

## 1. Operation

a. Reverse/exit selection gate control

The reverse/exit selection gate is driven by SD7 (reverse gate). Normally, the reverse/exit selection gate is open to guide paper to the reverse/ exit section in ADU. When paper is ejected straight, SD7 is turned ON to close the reverse/ exit selection gate.
When paper is ejected straight, SD7 is turned ON when the START button is pressed and it is turned OFF when PS37 (paper exit) turns OFF at detection of the trailing edge of the last sheet of paper.
b. M4 (fixing) control

M4 (fixing) starts when the START button is pressed, and it stops when PS37 (paper exit) turns OFF at detection of the training edge of the last sheet of paper.
(1) Straight paper exit

Paper is fed to the paper exit section straight by the paper exit roller driven by M4 (fixing) because SD7 (reverse gate) is turned ON to close the reverse/exit selection gate.
(2) Paper reverse/exit

Because SD7 (reverse gate) has been turned OFF to open the reverse/exit selection gate, paper is fed to the reverse/exit section in ADU by the paper exit roller and decurler roller driven by M4 (fixing).
(3) ADU conveyance Same as paper reverse/exit.
c. Reverse control

M8 (reverse/exit) starts when the START button is pressed, and it stops when PS37 (paper exit) turns OFF at detection of the trailing edge of the last sheet of paper. Its rotational speed and direction change when paper is ejected or reversed, or is fed to ADU.
(1) Paper reverse/exit

The paper fed from the fixing unit is then fed to the reverse/exit section via the reverse/exit selection gate. Normally, M8 and M9 are rotating in the forward direction at a low speed, feeding the paper to the ADU reverse section.
When PS30 (fixing exit) detects the trailing edge of paper and consequently turns OFF, M8 and M9 start rotating in the forward direction at a high speed, feeding paper to the ADU reverse section continuously. When PS42 (paper reverse) detects the trailing edge of paper and conse-
quently turns OFF, M8 and M9 start rotating in the opposite direction at a high speed, feeding the paper in the paper exit direction.
When PS45 (ADU paper reverse) detects the trailing edge of paper and consequently turns OFF, M9 starts rotating in the forward direction at a low speed. After a lapse of the specified time from detection of the trailing edge of paper by PS46 (reverse/exit), M8 (reverse/exit) starts rotating in the forward direction at a low speed, proceeding to feed the next sheet of paper.
(2) ADU conveyance

The operation performed from the moment PS30 (fixing exit) turns OFF at detection of the trailing edge of paper to the moment M8 (reverse/exit) and M9 (ADU reverse) start rotating in the forward direction at a high speed, is the same as that of reverse/exit.
When PS46 (reverse/exit) turns OFF at detection of the trailing edge of paper, M8 starts rotating in the forward direction at a high speed, proceeding to feed the next sheet of paper.
After a lapse of the specified time from detection of the trailing edge of paper by PS46, M9 starts rotating in the opposite direction at a low speed, feeding paper to the ADU conveyance section. When PS45 (ADU paper reverse) detects the trailing edge of paper and consequently turns OFF, M9 starts rotating in the forward direction at a low speed, proceeding to feed the next sheet of paper.
d. M7 (paper exit) control

M7 (paper exit) turns ON when the START button is pressed. The OFF timing is different between paper straight exit and reverse/exit.
(1) Paper straight exit

The paper fed from the fixing unit by the exit roller is ejected by the main body exit roller driven by M7 (paper exit). M7 is always rotating at a constant speed and it is turned OFF when PS37 (paper exit) turns OFF at detection of the trailing edge of the last sheet of paper.
(2) Paper reverse/exit

The paper fed from the reverse/exit section in ADU with it reversed, is ejected by the exit conveyance roller and main body exit roller which are driven by M7 (paper exit) rotating at a high speed. After a lapse of the specified time from turning OFF of PS42 (paper reverse) at detection of the trailing edge of paper, M7 (paper exit)
starts rotating at a low speed to even up the edges of paper in the exit tray. When PS37 (paper exit) is turned OFF at detection of the trailing edge of paper, M7 starts rotating at a high speed again, proceeding to eject the next sheet of paper. When PS37 detects the trailing edge of the last sheet of paper, M7 (paper exit) stops. If FNS is provided, M7 is always rotating at a high speed.
2. Signals
a. Input signals
(1) FIXEXIT_PS (PS30 to PRCB)

Detection signal of paper passage at fixing unit exit
[L]: Detected.
[H]: Not detected.
(2) DECUR_PS (PS42 to ADUDB)

Reverse/exit gate open/close detection signal
[L]: Gate is open.
$[\mathrm{H}]$ : Gate is closed.
(3) ADU_REV (PS45 to ADUDB)

ADU reverse section paper passage detection signal
[L]: Detected.
[H]: Not detected.
(4) REV_PS (PS46 to ADUDB)

ADU gate open/close detection signal
[L]: Gate is open.
[H]: Gate is closed.
b. Output signals
(1) GATE_DR (ADUDB to SD7)

SD7 (reverse gate) ON/OFF drive signal
[L]: SD7 ON
[H]: SD7 OFF
(2) $\mathrm{A}, / \mathrm{A}(\mathrm{PRCB}$ to M 7$)$

M7 (paper exit) A-phase drive control pulse signal
(3) $\mathrm{B}, / \mathrm{B}(\mathrm{PRCB}$ to M7)

M7 (paper exit) B-phase drive control pulse signal
(4) A, /A (ADUDB to M8)

M8 (reverse/exit) A-phase drive control pulse signal
(5) $\mathrm{B}, / \mathrm{B}$ (ADUDB to M8)

M8 (reverse/exit) B-phase drive control pulse signal

## [6] ADUPaper Conveyance/Feed Control



The paper fed from the ADU paper reversal section is fed by transmitting the drive force of M5 (conveyance) to ADU conveyance rollers 1 to 4. Paper is then fed to the second paper feed section by the drive force of M6 (loop roller). In the ADU conveyance section, pre-loop control is performed to correct paper skew forcibly. To perform this control, MC2 (ADU deceleration) and MC13 (ADU conveyance) are provided. Related signals
are PS41 (ADU conveyance/1), PS45 (ADU paper reverse), PS46 (reverse/exit), PS48 (ADU paper conveyance/2), PS49 (ADU deceleration), and PS50 (ADU pre-registration). SD9 (ADU lock) is provided to lock the handle of the ADU.

## 1. Operation

## a. ADU conveyance control

The paper fed from the ADU paper reversal section is fed to ADU pre-registration rollers at a high speed by transmitting the drive force of M5 (conveyance) to ADU conveyance rollers 1 to 4 . ADU conveyance rollers 1 and 2 are turned ON/OFF by MC13 (ADU conveyance) and ADU conveyance rollers 3 and 4 are controlled by MC2 (ADU deceleration). After a lapse of the specified time from turning ON of PS49 (ADU deceleration), MC2 and MC13 are turned OFF to press the paper against the ADU pre-registration roller, forming a paper loop.
MC13 is turned ON/OFF only when the paper length is 325 mm or longer. If the paper length is less than 325 mm , it stays ON during copying.
b. ADU feed control

M6 (loop roller) starts rotating at a high speed after a lapse of the specified time from detection of the leading edge of paper by PS50 (ADU preregistration). Thus, the ADU pre-registration roller starts rotating to feed paper to the second paper feed section. At this time, MC2 (ADU deceleration) and MC13 (ADU conveyance) are turned OFF so that the drive force of M5 (conveyance) which is also used to drive the second paper feed section is not transmitted to ADU conveyance rollers $1,2,3$, and 4 . MC2 and MC13 are turned ON after a lapse of the specified time from detection of the trailing edge of paper by PS49 (ADU deceleration), proceeding to feed the next sheet of paper.
After a lapse of the specified time from detection of the leading edge of paper by PS44 (registration), M6 starts rotating at a low speed. MC1 (registration) is turned ON after formation of a paper loop by the registration roller, thus writing the image on the back side.
c. ADU lock control

The ADU handle is locked by SD9 (ADU lock). PS47 (ADU handle) detects the handle position to determine whether the handle is locked or released.
2. Signals
a. Input signals
(1) ADU_JAM (PS41 to ADUSDB)

Detection signal of paper passage from exit of ADU conveyance roller 1
[L]: Detected.
[H]: Not detected.
(2) HD_PS (PS47 to ADUDB)

ADU handle position detection signal
[H]: Handle is released.
(3) ADUCR_PS (PS48 to ADUDB)

Detection signal of paper passage from exit of
ADU conveyance roller 2
[L]: Detected.
[H]: Not detected.
(4) ADUDN_PS (PS49 to ADUDB)

Detection signal of paper passage from exit of ADU conveyance roller 3
[L]: Detected.
[ H ]: Not detected.
b. Output signals
(1) LOCK_SD (ADUDB to SD9) SD9 (ADU lock) drive signal [L]: SD9 ON [H]: SD9 OFF
(2) ADUDN_MC (ADUDB to MC2) MC2 (ADU deceleration) drive signal
[L]: MC2 ON
[H]: MC2 OFF
(3) ADUCR_MC (ADUDB to MC13)

MC13 (ADU conveyance) drive signal
[L]: MC13 ON
[H]: MC13 OFF

## FIXING UNIT

## [1] Composition



## [2] Mechanisms

| Mechanism | Method |
| :--- | :--- |
| Fixing | Pressure + Heat roller |
| Heat source *1 | Heater lamp(Upper rollers: Two, Lower roller: One) |
| Cleaning *2 | Upper roller: Cleaning web (containing silicon oil) |
| Upper roller | Aluminum + Teflon coating |
| Lower roller | Silicon rubber + PFA tube |
| Separation | Separation claws (six upper and three lower claws) |
| Temperature detection | Upper roller: - Noncontact type thermistor (for control) TH1 <br> - Contact type thermistor (for fault detection) TH2 |
| Overheat protection | Upper roller: - Noncontact type thermostat (for fault detec- <br> tion) TS1 <br> Lower roller: - Noncontact type thermostat (for fault detec- <br> tion) TS2 |
| Neutralizing | Neutralizing brush |
| Pressure release | Pressure release shaft and spring |
| Exit path selection | Reverse/exit selection gate |
| Decurler *3 | Decurler roller + Restriction shaft |
| Jam detection *4 | Jam detection plate + Actuator + Photosensor |

*1 Fixing heater lamps
Two halogen lamps are used for the fixing upper roller and one halogen lamp is used for the fixing lower roller to reduce the warm-up time and ensure reliable fixing.
*2 Cleaning
Cleaning web is used to clean the fixing upper roller. The web SD (SD2) in the main body turns ON/OFF to drive the cleaning web wind-up shaft via the ratchet mechanism and gears, thus supplying cleaning web from the cleaning web unwinding shaft. SD2 is controlled according to the copy count, and cleaning web supplied about 0.025 to $0.05 \mathrm{~mm} / \mathrm{copy}$. Cleaning web containing silicon oil is pressed against the fixing roller (upper) by the pressure roller.

*3 Decurler
The paper guided by the reverse/exit selection gate is decurled while it passes between the decurler roller and restriction shafts. The decurler roller is driven by the fixing roller (upper) via gears.

*4 Jam detection
When a jam occurs in the fixing exit section, the paper exit guide plate (lower) is pressed down, causing the fixing exit PS (PS30) to detect a jam via the jam detection plate and actuator.


## [3] M16 (Web Drive) Control



SD2 (web) is controlled by PRCB (printer control board). The related signal is PS30 (fixing exit).

## 1. Operation

When PS30 is turned ON by passage of paper, SD2 is controlled by PRCB (printer control board) according to the fixing web counter value. The fixing web counter value is incremented together with the total counter in exit section of the main body. The relationship between the fixing web counter values and SD2 (web) is as follows:

| Fixing web counter <br> value | SD2 drive count |
| :--- | :--- |
| 1 to 12,000 | Once per copy |
| 12,001 to 30,000 | Once per copy *1 |
| 30,001 to 60,000 | Once per copy *2 |
| 60,001 to 125,000 | Once per 2 copies |
| 125,0001 to 260,000 | Once per 3 copies |
| 260,001 or more | Once per 6 copies |

*1 SD2 is turned ON once per copy, but is not turned ON once per six copies.
*2 SD2 is turned ON once per copy, but is not turned ON once per three copies.

## 2. Signals

a. PRCB input signal
(1) FIXEXIT_PS (PS30 to PRCB)

Detection signal of passage of paper at fixing unit exit
[L]: Detected.
$[\mathrm{H}]$ : Not detected.
b. PRCB output signal
(1) WEBSC_DRV (PRCB to SD2) SD2 (web) drive control signal [L]: SD2 ON
$[\mathrm{H}]$ : SD2 OFF

## [4] Fixing Temperature Control



The fixing roller (upper) is heated by L2 (fixing heater lamp 1) and L3 (fixing heater lamp 2) and the fixing roller (lower) is heated by L4 (fixing heater lamp 3). The PRCB (printer control board) detects the temperature of the fixing roller (upper) using TH1 (fixing temperature sensor/1) TH2 (fixing temperature sensor/2) and controls L2 and L3 via DCPS (DC power supply unit).

## 1. Operation

a. Temperature control

The PRCB (printer control board) turns ON the fixing heater lamp circuit in DCPS as soon as the SW2 (sub power) is turned ON, holding L2 (fixing heater lamp/1), L3 (fixing heater lamp/2), and L4 (fixing heater lamp/3) lit until the fixing roller (upper) reaches the specified temperature. L2, L3 and L4 are turned ON/OFF under the control of the TRC1 (triac/1 ), TRC2 (triac/2) and TRC3 (triac/3).
b. Protection against abnormal temperature rise
Thermostats are used to prevent the temperature of the fixing rollers from rising abnormally. TS1 (thermostat/U) and TS2 (thermostat/L) are used for the fixing roller (upper/lower). As these thermostat are of the noncontact type, those do not touch the fixing roller (upper/lower).

The operating temperature of the thermostats are as follows:
TS1: Opens at $356^{\circ} \mathrm{F}$
TS2: Opens at $230^{\circ} \mathrm{F}$
2. Signals
a. PRCB input signals
(1) TH1+,- (TH1 to PRCB)

Fixing roller (upper) temperature detection signal
This signal is used to control the temperature of the fixing roller (upper) and to detect abnormal temperature rise.
(2) $\mathrm{TH} 2+,-$ (TH2 to PRCB)

Fixing roller (upper) temperature detection signal
This signal is used to detect the fixing roller (upper) abnormal temperature rise.

## b. PRCB output signals

(1) FIXHT1_CONT (PRCB to DCPS)

L2 drive control signal
[L]: L2 ON
[H]: L2 OFF
(2) FIXHT2_CONT (PRCB to DCPS)

L3 drive control signal
[L]: L3 ON
[H]: L3 OFF
(3) FIXHT3_CONT (PRCB to DCPS)

L4 drive control signal
[L]: L4 ON
[H]: L4 OFF

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## OTHER KINDS OF CONTROL

## [1] Parts Energized When SW1 (Main Power) is OFF

 In the case of the 7155/7165

4 In the case of the 7255/7272


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## 1. Operation

If the power cord is plugged in the wall outlet, the following parts are energized regardless of whether SW1 (main power) is ON or OFF:
a. CBR1/2 (circuit breaker/1/2)

If an excessive current flows due to a short in an internal part or other factors, this breaker turns OFF to cut off the power to the machine.
b. $\quad \mathbf{N F}$ (noise filter)

The noise filter is used to reduce the noise arriving through the power line.
c. DCPS (DC power supply unit)

RL2 (heater relay) is turned ON to turn ON HTR1 (heater/1), HTR2 (heater/2), and HTR3 (drum heater (spare parts)).
d. Internal heaters

HTR1 (heater/1), HTR2 (heater/2), and HTR3 (drum heater (spare parts)) are energized in synchronization with ON or OFF operation of SW1 (main power). (7155/7165)
HTRs 1 to 3 are energized by turning ON/OFF SW3 (heater switch). (7255/7272)

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## [2] Parts That Operate When SW1 (Main Power)/SW2 (Sub Power) is ON

4


1. Operation
a. Operation performed when SW1 (main power) is ON
When SW1 (main power) is turned ON, AC power is supplied to DCPS (DC power supply unit). As a result, DCPS supplies 5 VDC and 12 VDC to the status management and control circuit on ICB (image control board), HD-105, and IP-511. ICB supplies 5 VDC to OB1 (operation board/1).
b. Operation performed when SW2 (sub power) is ON
If SW2 (sub power) is turned ON when SW1 (main power) is already ON, DCPS supplies 24 DVC for driving various loads. Thus, all boards are energized and initialization of this machine starts.
2. Signals
a. Output signals
(1) REM/2, /3 (ICB to DCPS)

The DC voltage output from DCPS (DC power supply unit) is controlled according to the combination of levels of two signals.

| REM/2 | REM/3 | Output |
| :---: | :---: | :--- |
| H | H | $5 \mathrm{~V} 1,12 \mathrm{~V} 1$ |
| L | H | $5 \mathrm{~V} 1,12 \mathrm{~V} 1,5 \mathrm{~V} 2,12 \mathrm{~V} 2$, <br> $24 \mathrm{~V} 1,-5 \mathrm{~V} 1$ |
| L | L | $5 \mathrm{~V} 1,12 \mathrm{~V} 1,5 \mathrm{~V} 2,12 \mathrm{~V} 2$, <br> $24 \mathrm{~V} 1,-5 \mathrm{~V} 1,24 \mathrm{~V} 2$ |


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## [3] Cooling Fan Control



FM1 (main body cooling/1), FM2 (write section cooling), FM5 (cleaner cooling), FM6 (paper exit /F), FM7 (paper exit/R), and FM8 (main cooling /2) are controlled by PRCB (printer control board) directly. FM9 (scanner cooling) is driven by SCDB (scanner drive board). FM10 (ADU reverse motor cooling) is driven by ADUDB (ADU drive board) and is controlled by PRCB. FM13 (power supply cooling) is driven by DCPS (DC power supply unit).

## 1. Operation

A 24 VDC motor is used for each cooling fan.
a. FM1 (main body cooling/1)
(1) ON timing

- During warm-up, starts rotating at a low speed when M 2 (drum) is turned ON.
- During copying, held rotating at a high speed. When copying is completed, rotates at a high speed for the specified time according to the temperature in the machine, then starts rotating at a low speed.

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(2) OFF timing

- During warm-up, stops when M2 (drum) is turned OFF.
- After completion of warm-up, not turned OFF until SW2 (sub power) is turned OFF.
b. FM2 (writing section cooling)
(1) ON timing

Turned ON when M15 (polygon) is turned ON.

- During copying, held rotating at a high speed in sync with M2 (drum).
- When not copying, held rotating at a low speed.
(2) OFF timing

Not turned OFF until SW2 (sub power) is turned OFF.
c. FM5 (cleaner cooling)
(1) ON timing

Turned ON when SW2 (sub power) is turned ON.

- During coping, held rotating at a high speed.
- When copying is completed, starts rotating at a low speed after a lapse of the specified time from turning OFF of M7 (paper exit). After this, switching between high- and low-speed operations takes place according to the temperature in the machine.
(2) OFF timing

Not turned OFF until SW2 (sub power) is turned OFF.
d. FM6 (paper exit/F), FM7 (paper exit/R), and FM8 (main cooling/2)
(1) ON timing

At the start of copying, starts rotating at a constant speed.
(2) OFF timing

Turned OFF when M7 (paper exit) is turned ON.
e. FM9 (scanner cooling)
(1) ON timing

Turned ON when L1 (exposure lamp) is turned ON.
(2) OFF timing

Turned OFF when L1 (exposure lamp) is turned OFF.
f. FM10 (ADU reverse motor cooling)
(1) ON timing

Starts rotating at a constant speed when M9 (ADU reverse) is turned ON.
(2) OFF timing

Turned OFF when M9 (ADU reverse) is turned OFF.
g. FM13 (power supply cooling)
(1) ON timing

Starts rotating at a constant speed when SW1 (main power) is turned ON.
(2) OFF timing

Not turned OFF until SW1 (main power) is turned OFF.
h. FM12 (Developer cooling) (7255/7272)
(1) ON timing

Turned ON when the copying is started.
(2) OFF timing

Turned OFF when M7 (paper exit) is turned ON.
i. Fan air flow

2. Signals
a. Input signals
(1) MAINFAN_EM (FM1 to PRCB)

FM1 (main body cooling/1) abnormality detection signal
$[\mathrm{H}]$ : Abnormality is detected.
(2) WRFAN1_EM (FM2 to PRCB)

FM2 (writing section cooling) abnormality detection signal
$[H]$ : Abnormality is detected.
(3) CLFABN_EM (FM5 to PRCB)

FM5 (cleaner cooling) abnormality detection signal
[H]: Abnormality is detected.
(4) FIXFAN3_EM (FM6 to PRCB)

FM6 (paper exit/F) abnormality detection signal [L]: FM6 is normal.
[H]: FM6 is abnormal
(5) FIXFAN2_EM (FM7 to PRCB)

FM7 (paper exit/R) abnormality detection signal
[L]: FM7 is normal.
[H]: FM7 is abnormal.
(6) FIXFAN1_EM (FM8 to PRCB)

FM8 (main cooling/2) abnormality detection signal
[L]: FM8 is normal.
[H]: FM8 is abnormal.
(7) EM (FM9 to SCDB)

FM9 (scanner cooling) abnormality detection signal
[L]: FM9 is normal.
[H]: FM9 is abnormal.
(8) ADUFAN_EM/1 (FM10 to PRCB)

FM10 (ADU reverse motor cooling) abnormality detection signal
[L]: FM10 is normal.
[H]: FM10 is abnormal.
(9) FAN2 (FM13 to PRCB)

FM13 (power supply cooling) abnormality detection signal
[L]: FM13 is normal.
[H]: FM13 is abnormal.
(10) SCANFAN_EM (SCDB to PRCB)

FM9 (scanner cooling) abnormality detection signal
[L]: FM9 is normal.
[H]: FM9 is abnormal.
(11) BINFF_EM

FM12 (developer cooling) abnormality detection signal
[L]: FM12 is normal
[H]: FM12 is abnormal
b. Output signals
(1) MAINFAN_D (PRCB to FM1)

FM1 (main body cooling/1) ON/OFF control signal [L]: FM1 ON
[H]: FM1 OFF
(2) MAINFAN_HL_20 (PRCB to FM1)

FM1 (main body cooling/1) rotational speed control signal
[L]: Low speed
[H]: High speed
(3) WRFAN1_D (PRCB to FM2)

FM2 (writing section cooling) ON/OFF control signal
[L]: FM2 ON
[H]: FM2 OFF
(4) WRFAN1_HL (PRCB to FM2)

FM2 (write section cooling) rotational speed con-
trol signal
[L]: Low speed
[H]: High speed
(5) CLNFAN_D (PRCB to FM5)

FM5 (cleaner cooling) ON/OFF control signal
[L]: FM5 ON
[H]: FM5 OFF
(6) CLFFAN_D (PRCB to FM5)

FM5 (cleaner cooling) rotational speed control
signal
[L]: Low speed
[H]: High speed
(7) FIXFAN_D (PRCB to FM6)

FM6 (paper exit/F) rotational speed control signal
[L]: Low speed
[H]: High speed
(8) FIXFAN_D (PRCB to FM7)

FM7 (paper exit/R) ON/OFF control signal
[L]: FM7 ON
[H]: FM7 OFF
(9) FIXFAN-D (PRCB to FM8)

FM8 (main cooling/2) ON/OFF control signal
[L]: FM8 ON
[H]: FM8 OFF

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(10) 24V DRV (SCDB to FM9)

FM9 (scanner cooling) ON/OFF control signal [L]: FM9 ON
[H]: FM9 OFF
(11) ADU FAN/1 (ADUSDB to FM10)

FM10 (ADU reverse motor cooling) ON/OFF
control signal
[L]: FM10 ON
[H]: FM10 OFF
(12) FAN1 (DCPS to FM13)
[L]: FM13 ON
[H]: FM13 OFF
(13) SCANFAN_CONT-18 (PRCB to SCDB)

FM9 (scanner cooling) ON/OFF control signal
[L]: FM9 ON
[H]: FM9 OFF
(14) BINF_D

FM12 (developer cooling) ON/OFF control signal
[L]: FM12 ON
[H]: FM12 OFF

## [4] Operation Panel Control



The operation panel consists of OB1 (operation board 1), PAKB (panel key board), and LCD (indicator board). The LCD has a backlight which is driven by OB IVNB (OB inverter) and touch switches which correspond to the display messages.
The operation panel is controlled by the OB1 based on the serial data output from the ICB (image control board).

1. Operation
a. LED ON operation

The LED on the OB1 (operation board/1) is controlled by sub CPU of OB1 at the command of ICB (image control board).
b. LCD (indicator board) control
(1) LCD (indicator board) display operation The LCD (image control board) displays various information according to the 4-bit parallel data from ICB (image control board) via OB1 (operation board 1).
(2) Backlight ON operation The LCD (indicator board) has a backlight (cold cathode tube) to facilitate viewing. The backlight is driven by OB INVB (OB inverter), and controlled by the OB1 (operation board/1).
(3) PAKB (panel key board) control

The LCD (indicator board) has PAKB (panel key board) to allow you to select an item displayed on the LCD directly. PAKB is controlled by OB1 (operation board/1).

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## 2. Signals

a. Input signals
(1) S_IN2 (OB1 to ICB)

Serial data which informs ICB (image control board) of the operation state of OB1 (operation board/1).
(2) /CTS2 (OB1 to ICB)

Signal which indicates that data can be sent from OB1 (operation board/1) to ICB (image control board)
When this signal is at the high level ([H]), ICB stops sending the S_OUT2 signal.
(3) /DSR2 (OB1 to ICB)

Acknowledgment signal which is returned each time OB1 (operation board/1) receives one-byte data from ICB (image control board)
b. Output signals
(1) S_OUT2 (ICB to OB1)

Serial data which informs OB1 (operation board /1) of the machine status that is known to ICB (image control board).
(2) /RTS2 (ICB to OB1)

Signal which indicates that data can be sent from ICB (image control board) to OB1 (operation board/1).
When this signal is at the high level $([\mathrm{H}])$, OB1 stops sending the S_IN2 signal.
(3) /DTR2 (ICB to OB1)

Acknowledgment signal which is returned each time ICB (image control board) receives onebyte data from OB1 (operation board/1).

## [5] Counter Control



This machine has the following counters:
C (T): Total counter
C (K): Key counter
These counters are controlled by the PRCB (printer control board).
The related signal is PS37 (paper exit).

1. Operation

This machine counts copies using a software counter.
(1) Paper exit counter

The count increases by 1 each time PS37 (paper exit) which has been ON is turned OFF (two counts in the dual-sided document copy mode).
<Operation of each counter>
a. Copy quantity display counter on OB

Displays the count of ejected papers
b. $\quad \mathrm{C}(\mathrm{K})$

This counter counts in sync with the paper exit counter.
c. $\mathrm{C}(\mathrm{T})$

This counter counts in sync with the paper exit counter.
2. Signals
a. PRCB input signals
(1) KSYC_SET (C (K) to PRCB)

Signal indicating the state of 24 V power supply to C (K)
[L]: 24V power is not supplied.
b. Output signals
(1) TC_DRV (PRCB to C (T))
$\mathrm{C}(\mathrm{T})$ drive control signal
[L]: C (T) ON
(2) KEYC_DRV (PRCB to C (K))

C (K) drive control signal
[L]: C (K) ON

## [6] Option Control



Options such as LCT and FNS are controlled by the PRCB (printer control board).

1. Operation

FNS incorporates CB which exchanges only control data with PRCB (printer control board) of the main body. LCT, FNS, and HDD are powered by the DCPS (DC power supply unit).

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<Functions and output timings of signals for copy vendors>

| Connector | Pin No. | Signal name | Description | Output timing | Signal type |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 35 | 1 | DV24V | Key counter power supply | Always | $24 \mathrm{~V}, 300 \mathrm{~mA}$ |
|  | 2 | C(K) SIG | Key counter connection recognition | - | - |
|  | 3 | C(K) GND | Signal ground |  |  |
|  | 4 | C(K) DRIVE | Key counter signal count up | 100-ms L-signal output after paper ejection | - |
|  | 5 | P. GND | Power ground | - | - |
| 36 | 1 | Vendor Copy | Copying signal | Output from the moment START PRINT button is pressed to the moment paper ejection is completed. | Open collector $5 \mathrm{~V}, 200 \mathrm{~mA}$ |
|  | 2 | Vendor FEED | Paper feed signal | Common to main body tray. 100-ms L-signal output in syncwith paper feed. |  |
|  | 3 | Paper size 0 | Paper size signal | Output when paper size is changed. |  |
|  | 4 | Paper size 1 |  |  |  |
|  | 5 | Paper size 2 |  |  |  |
|  | 6 | Paper size 3 |  |  |  |
|  | 7 | Vendor screen | Double-sided copy selection signal | Output when ADUmode is selected. |  |
|  | 8 | CPF SIG0 | CPF mode selection signal | Output when copy or printer mode is selected. |  |
|  | 9 | CPF SIG1 |  |  |  |
|  | 10 | P. GND | Power ground | - | - |



DISASSEMBLY/ASSEMBLY

This section explains how to disassemble and reassemble the machine. When disassembling and reassembling the machine, follow the precautions given below.

1. Be sure the power cord has been unplugged from the wall outlet.
2. The disassembled parts must be reassembled following the disassembly procedure in reverse unless otherwise specified.
3. Care should be taken not to lose small parts. Care should also be taken not to install small parts in wrong places.
4. Do not operate the machine before installing all the disassembled parts completely.
5. Removal of some screws is prohibited in this section. Never loosen them.

## EXTERNAL SECTION

[1] Replacing the Ozone Filter In the case of the 7155/7165
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.

Caution: When replacing the ozone filter, insert it in the opening in the main body as far as it will go.
a. Procedure
(1) Loosen two screws to remove the ozone filter cover.

(2) Replace the ozone filter.


## In the case of the 7255/7272

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.

Caution: When replacing the ozone filter/Mand /S, insert it in the opening in the main body as far as it will go.
b. Procedure
(1) Loosen two screws to remove the ozone filter cover.

(2) Replace the ozone filter $/ \mathrm{M}$ and $/ \mathrm{S}$.

(3) Reinstall the above parts following the removal steps in reverse.
(3) Reinstall the above parts following the removal steps in reverse.

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## [2] Replacing the Developing Suction

 Filter
## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.

Caution: When replacing the developing suction filter, insert it in the opening in the main body as far as it will go.
a. Procedure
(1) Loosen the screw to remove the developing suction filter cover.
(2) Replace the developing suction filter.

(3) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the developing suction filter, the filter-supporting material should face the back of the machine.

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[3] Removing and Reinstalling the External Covers
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove fourteen screws to detach the rear cover.

Caution: The ozone filter cover and the option cover detach together with the rear cover.

(2) Remove seven screws to detach the left side cover.

(3) Loosen one screw and remove the developing suction filter cover.
(4) Loosen five screws and detach the right side cover (upper).

Caution: The developing suction filter cover detaches together with the right side cover (upper).
(5) Loosen two screws to detach the right side cover (lower front).
(6) Loosen two screws to detach the right side cover (lower rear).
(7) Loosen two screws to detach the right side cover (lower middle).

(8) Open the RADF.
(9) Remove the two shoulder screws to remove the original stopper plate (left).
(10) Remove the three shoulder screws to remove the original stopper plate (rear).
(11) Remove the platen glass.
(12) Remove two screws to detach the top cover (left).
(13) Remove two screws to detach the top cover (right).
(14) Remove the top cover (middle front) and top cover (middle rear).

(15) Open the front right door and front left door.
(16) Remove one screw to remove the front open/ close stopper.
(17) Remove two screws to remove the front right door open/close hinge (lower) and front right door.
(18) Remove two screws and remove the front left door hinge (lower) and the front left door.

(19) Reinstall the above parts following the removal steps in reverse.
[4] Changing the Operation Panel Attachment Angle and Removing/ Reinstalling

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Open the front left door and front right door.
(2) Remove two screws to remove the operation panel cover (middle).

(3) Remove two screws to unlock the operation panel.

(4) When changing the operation panel attachment angle, align the operation panel stopper with the stopper hole at the front side on the bottom of the operation panel and fasten using two screws in the operation cover attachment holes.
Caution1: To remove the operation panel, skip this step and proceed to step (5).
Caution2: When the attachment angle of the operation panel is changed, the operation panel cover and two screws will become unnecessary.


## [5] Resetting the Circuit Breaker

 $\triangle$ Caution:Be sure the power cord has been unplugged from the wall outlet.

## $\triangle$ Caution:

Connection of cables to circuit breaker 1 and 2 (CBR1, 2) must not be changed.
a. Procedure
(1) Remove the rear cover.
(2) Remove two screws and loosen the circuit breaker assembly.


## DRIVE SECTION

## [1] Removing and Reinstalling the Drum Motor (M2)

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.

Caution: Be sure to draw the drum unit out of the main body before removing or reinstalling the drum drive motor. If you fail to draw out the drum unit, the cleaning blade may be damaged because the drum rotates when installing or removing the flywheel or gear.
a. Procedure
(1) Draw the drum unit out of the main body. (See "DRUM UNIT.")
(2) Remove the rear cover. (See "EXTERNAL SECTION.")
(3) Remove the developing suction cover and right cover (top). (See "EXTERNAL SECTION.")
(4) Remove twenty-one screws and remove the image control board cover.

(5) Remove five screws at the rear and three screws on the right side and remove all connectors from the image control board (ICB).


Caution: When removing CN110 ribbon cable, pull and recline the lock lever frontward, release the lock, and then pull out the ribbon cable.


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When installing the ribbon cable, pull and recline the lock lever frontward, be sure to insert it fully to the end of the connector so that the conductive surface of the ribbon cable is positioned in the opposite side.


Subsequently, set back the lock lever in original position and lock the ribbon cable.

(6) Remove each cable from wire guide.
(7) Remove one cable from the scanner board and two cables from the write unit, draw then through the hole and open the image control board mounting plate.

(8) Remove three screws and remove the two flywheels.

(9) Remove the connector (CN301).
(10) Remove four screws and remove the drum motor (M2).

(11) Reinstall the above parts following the removal steps in reverse.
[2] Removing and Reinstalling the Fixing Input Gear

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Open the image control bard mounting board.
(2) Remove six screws and remove the fixing motor cover.
(3) Pull out the connector (CN304), remove four screws to remove the fixing motor assembly.

Caution: Hold the fixing motor assembly with your hand because it is connected to the main body with cable.

(4) Remove two screws to remove the fixing input gear holder.
(5) Pull out the fixing input gear from the shaft.

(6) Reinstall the above parts following the removal steps in reverse.

## SCANNER SECTION

[1] Screws That Must Not be Removed
a. 14 screws securing the CCD unit

b. Read position adjusting plate screw (1 each)

[2] Removing and Reinstalling the CCD Unit $\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
Caution1: Be sure to adjust the image after installing the CCD unit (See "ADJUSTMENT.")
Caution2: When disconnecting or reconnecting connectors from / to the AD converter board, be careful not to place any stress on the board.
a. Procedure
(1) Remove the right side cover (top), left side cover, original stopper plates (left and rear), platen glass and top cover (right, left, front center, and rear center). (See "EXTERNAL SECTION.")
(2) Remove eleven screws to remove the lens light blocking cover.

(3) Remove the connector (CN170) from the $A / D$ converter board (ADB).
4 In the case of the 7155/7165


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In the case of the 7255/7272


Caution: When removing CN170 ribbon cable, pull and recline the lock lever frontward, release the lock, and then pull out the ribbon cable.


When installing the ribbon cable, pull and recline the lock lever frontward, be sure to insert it fully to the end of the connector so that the conductive surface of the ribbon cable is positioned in the opposite side.


Subsequently, set back the lock lever in original position and lock the ribbon cable.


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(4) Remove two screws to remove the CCD unit.


Caution: Mark the place where the CCD unit is installed before removing it.
(5) Reinstall the above parts following the removal steps in reverse.
[3] Replacing the Exposure Lamp $\triangle$ Caution1:
Be sure the power cord has been unplugged from the wall outlet.

## $\triangle$ Caution2:

Do not touch the exposure lamp with bare hands.

Caution: Be sure to check the image after installing the exposure lamp. (See "ADJUSTMENTS.")
a. Procedure
(1) Remove the original stopper plates (left and rear), platen glass and top cover (right, middle front, and middle rear). (See "EXTERNAL SECTION.")
(2) Move the exposure unit to the notch in the main body frame on the paper exit side.
(3) Remove the connector and two screws, then remove the exposure lamp.

(4) Reinstall the above parts following the removal steps in reverse.

## [4] Removing and Reinstalling the Exposure Unit

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
Caution1: When installing the exposure unit, use the optics unit positioning jig.
Caution2: Be sure to perform image adjustment after installing the exposure unit. (See "ADJUSTMENT.")
a. Procedure
(1) Remove the right side cover (top), left side cover, original stopper plates (left and rear), platen glass and top cover (right, left, front center, and rear center). (See "EXTERNAL SECTION.")
(2) Remove the operation panel. (See "EXTERNAL SECTION.")
(3) Remove the relay connector (CN162).

Caution: Each relay connector consist of two male sides and one female side. Be sure to remove only the male side (shown below) of the CN162 connector.
(4) Loosen the left and right screws on the operation panel cover (top).
(5) Remove three screws and remove the operation unit cover (top).
(6) Move the exposure unit to the notch in the main body frame on the paper exit side.
(7) Remove two screws to detach the cord clamp (B).
(8) Remove one screw to remove the ground terminal.
(9) Disconnect the connector (CN630).
(10) Remove four screws to detach the exposure unit.

b. Installation procedure
(1) Move the V-mirror unit toward the paper exit side, then insert the optics positioning jigs from the front to secure the V-mirror unit. Ensure that the optics positioning jigs pass through the V-mirror unit.
(2) Insert the optics positioning jigs in the holes at the exposure unit mounting position from the front.
(3) Slide the exposure unit to the paper exit side until it touches the optics unit positioning jig.

(4) Install the exposure unit to the optics wire mounting bracket with four screws.
(5) Remove two optics unit positioning jigs.
(6) Reverse the removal procedure to reinstall the removed parts.

## [5] Installing the Optics Wire

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
Caution1: When winding the optics wire around the pulley, be sure to run the wire tightly so that it does not ride on the side of the pulley.
Caution2: When re-tensioning or replacing the optics wire, be sure to use the optics positioning jig.
Caution3: Be sure to perform image adjustment after replacing or re-installing the wire (See "ADJUSTMENT.")
a. Procedure
(1) Remove the exposure unit.
(2) Move the V-mirror unit toward the paper exit side then insert the optics positioning jigs from the front to secure the V-mirror unit. Ensure that the optics positioning jigs pass through the V-mirror unit.
(3) Place the metal bead at the midpoint of each optics wire in the mounting hole in the drive pulley. Starting at this point, wind the optics wire five turns to the outside and four times to the inside on the drive pulley.
Caution1: Ensure that there is a metal bead at the end of the outer wire, and a wire terminal at the end of the inner wire.
Caution2: Pull out the outer wire from above the drive pulley in the paper exit direction, and the inner wire from under the drive pulley in the paper feed direction.
(4) After winding the outer wire, secure it to the wire stopper via the outside of pulley 1 and V-mirror pulley through the notch in the wire stopper.


Caution: There are two grooves in the wire stopper. Ensure that the outer groove is at the rear and the inner groove is at the front.
(5) Reverse the inner wire at pulley 2, pass it along the inside of the V -mirror pulley and pulley 3 , then attach the wire terminal to the spring fixing plate. At this time, secure the spring fixing plate temporarily with one screw.
(6) Install the other wire following the same procedure.
(7) Loosen each screw that was tightened temporarily, install the spring on the spring fixing plate, and tighten each screw.

## [6] Cleaning the Slit Glass and Platen Glass

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
(1) Remove the original stopper plates (left and rear), platen glass, and top cover (right, left, front center, and rear center). (See "EXTERNAL SECTION.")
(2) Remove two screws to detach the slit glass.
(3) Place the removed slit glass and platen glass on a rag and clean with drum cleaner and cleaning pad.

(4) Reinstall the above parts following the removal steps in reverse.
[7] Replacing the Scanner Motor (M11) $\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the RADF unit, original stopper plates (left and rear), platen glass, and top cover (right, left, front center, and rear center). (See "EXTERNAL SECTION.")
(2) Remove one connector (CN639) from the APS timing PS (PS51).

(3) Remove the hinge mounting plate (rear side) from the scanner unit. (12 screws)
(4) Remove four screws from the scanner motor (M11), then remove the scanner belt and the scanner motor.

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(5) Install the scanner motor (M11) and the scanner belt. Tighten the scanner motor loosely with four screws.
Caution1: Make sure to install the belt in the middle of two pulleys. Also make sure that the belt is not placed on the edges of pulleys, or that it is running off from the pulleys.
Caution2: Tighten the motor by first tightening the screw and then give it one turn to loosen slightly.

(6) Hook the spring scale on the upper hole of the scanner motor (M11).

(7) Pull the spring scale upward, and tighten the scanner motor (M11) tightly with the tension pressure of $2 \pm 0.2 \mathrm{kgf}$. (Use four screws)

Caution: Make sure that the scanner motor moves up and down when confirming the tension pressure.

(8) Make sure that the belt is not slacked off after marking an adjustment.
(9) Insert the connector to the scanner motor (M11).
(10) Follow the disassembly procedures in reverse order to install.

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## WRITE SECTION

## [1] Removing and Reinstalling the Write Unit

In the case of the 7155/7165
$\triangle$ Warning:
(1) Do not energize the write unit when it is not in the correct position.
(2) Never remove the write unit cover and the polygon unit cover.
(3) Never look directly into the laser beam. It can cause blindness.
(4) Never remove the write unit for at least two minutes after turning OFF the main switch.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the left side cover. (See "EXTERNAL SECTION.")
(2) Remove nine screws to detach the fan holder assembly.
(3) Remove the relay connector (CN338).

Caution: Each relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the CN338 connector.
 188).
(5) Loosen the screw to draw out and remove the write unit.

(6) Reinstall the above parts following the removal steps in reverse.

## In the case of the 7255/7265

\} Warning:
(1) Do not energize the write unit when it is not in the correct position.
(2) Never remove the write unit cover and the polygon unit cover.
(3) Never look directly into the laser beam. It can cause blindness.
(4) Never remove the write unit for at least two minutes after turning OFF the main switch.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
b. Procedure
(1) Remove the left side cover. (See "EXTERNAL SECTION.")
(2) Remove the relay connector (CN338).
(3) Remove eleven screws to detach the fan holder assembly.

(4) Remove the three connectors (CN185, 187, 188).
(5) Loosen the screw to draw out and remove the write unit.

(6) Reinstall the above parts following the removal steps in reverse.

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## [2] Cleaning the Dust-Proof Glass

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the write unit.
(2) Clean the dust-proof glass at the bottom of the write unit with cleaning pad and blower brush.

(3) Reinstall the above parts following the removal steps in reverse.

## DRUM UNIT

## [1] Removing and Reinstalling the Drum Unit

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
Caution1: Be sure to put a drum cover over the removed drum unit and store the drum unit in a dark place.
Caution2: When installing or removing the drum unit, do not rotate it in the direction opposite to the specified one. Rotating the drum unit in the opposite direction during copy operation could damage the cleaning blade.
Caution3: When installing or removing the drum unit, take care not to touch the separation claw.
4. Caution4: When installing a new drum, be sure to enter mode 25 and select "Copy Count by Parts to be Replaced" to reset OPC drum counter.
a. Procedure
(1) Open the left and right front doors.
(2) While pressing the solenoid release lever on top of the ADU rack to the left, flip the ADU rack pullout lever to the left.
(3) Loosen three screws to remove the drum cover.

(4) Loosen one screw and slide the blade fixing component in the direction of the arrow until it stops to release the crimp of the cleaning blade.
(5) Loosen the screw of the blade fixing component.

(6) Remove the two screws securing the drum unit.
(7) Release the toner supply pipe in the direction of the arrow.
(8) Remove the screw securing the coupling to detach the drum shaft coupling and drum coupling.
(9) Hold the two sections shown in the figure and pull out the drum unit.

(10) Reinstall the above parts following the removal steps in reverse.

Caution: To install the coupling, see "[2] Installing the Coupling."

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## [2] Installing the Coupling

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Clean the outer surface of the drum coupling and drum shaft coupling with drum cleaner and cleaning pad.
(2) Insert the drum coupling aligning the protrusions on the drum coupling with the notches in the drum.

(3) Insert the drum shaft coupling so that the D cut section of the drum shaft coupling matches the drum shaft.

(4) Turn the head of the drum coupling clockwise so that the flange section on the drum shaft coupling is flush.

(5) Tighten with screw.

## [3] Removing, Cleaning, and Reinstalling the Drum

$\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
Caution1: Be careful not to touch the drum or the cleaning blade with bare hands, or damage them.
Caution2: When leaving the drum, be sure to put the drum cover over the drum and store it in a dark place.
Caution3: When reinstalling the drum, cleaning blade, and toner guide roller, apply setting powder to the entire surface of the drum and also to the cleaning blade regardless of whether the parts are new or old.
Caution4: After applying setting powder to the drum, perform the following before installing the drum unit in the main body.

1) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).
2) When installing a new drum, be sure to enter mode 25 and select "Copy Count by Parts to be Replaced" to reset drum counter. (See "ADJUSTMENT.")
a. Procedure
(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit, developing unit, cleaning blade, and toner guide roller from the drum unit. (See "CHARGING CORONA UNIT SECTION," DEVELOPING UNIT," and "CLEANING/TONER RECYCLE SECTION.")
(3) Supporting the drum at both ends with your fingers so that the drum surface is not damaged, slowly remove it upward (front side first).
(4) Clean the toner scattered around the drum installation area using a blower brush and cleaning pad.

(5) Reinstall the above parts following the removal steps in reverse.
[4] Removing and Reinstalling the Separation Claws and Separation Claw Solenoid
©Caution:
Be sure the power cord has been unplugged from the wall outlet.
Caution1: Take care not to damage the drum when removing the separation claws.
Caution2: Note the orientation and position of the separation claws when reinstalling them.
Caution3: Do not touch the cleaning blade and drum with bare hands.
a. Procedure
(1) Remove the drum unit from the main body.
(2) Remove the drum.
(3) Remove the connector (CN363) and separation swing spring.
(4) Remove two screws and detach the separation guide plate assembly.

(5) Remove the stop ring, slide the shaft, and remove the three separation claws.
Caution1: Clean the shaft with drum cleaner and a cleaning pad when installing. The separator claws cannot move smoothly if they are installed with toner remaining on the shaft.
Caution2: When installing, insert the retaining ring between the ribs.
Caution3: After installing the separation claws, check that they move smoothly.

(6) Remove two screws and remove the separator claw solenoid assembly.

(7) Remove two screws and detach the separation claw SD (SD1).

(8) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the separation claw unit, match the pin and guide hole shown in the figure.


## [Reference]

When removing the separation claw solenoid (Normally, it should not be removed except when replacing the solenoid).
(1) Install the separation claw unit to the drum unit.
(2) Tighten the solenoid screw when the claw closest to the drum touches the drum.

(3) Set the drum unit to the main body and check that the tips of the separation claws than 0 mm up to 1 mm .)
[5] Removing and Reinstalling the Toner Control Sensor Board

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the drum unit from the main body.
(2) Remove the drum.
(3) Remove the separator claw solenoid assembly.
(4) Remove the connector (CN362).
(5) Remove three screws and remove the toner control sensor board.
(6) Clean the sensors of the toner control sensor board (the Dmax/jam sensor at the front and the $\gamma$ sensor at the back) using a blower brush, drum cleaner, and cleaning pad.
(7) Reinstall the above parts following the removal steps in reverse.


Caution: When installing the toner control sen-
sor board, tighten the screws pulling it up until stoppers.

## CORONA UNIT

## [1] Screws That Must Not be Removed

a. Five screws securing the transfer entrance guide plate


Caution: Do not strain the transfer entrance guide plate and guide rollers, for example, pressing down on them strongly.

Caution: Take care not to damage the edge of the transfer entrance guide plate since it is deformed easily.
[2] Removing and Reinstalling the Charging Corona Unit
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.

Caution: When removing the charging corona unit, do not touch the mesh of the charging corona unit control plate.
a. Procedure
(1) Remove the drum unit from the main body. (See "DRUM UNIT.")
(2) Disconnect the two connectors (CN364, 365). Remove the charging corona unit by holding it at the positions shown below with both hands.

(3) Reinstall the above parts following the removal steps in reverse.
[3] Removing and Reinstalling the Charge Control Plate

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the charging corona unit.
(2) Remove the two springs and remove the charge control plate.

(3) Reinstall the above parts following the removal steps in reverse.
[4] Replacing the Charging Wires

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the charging corona unit.
(2) Remove the charge control plate.
(3) Remove the spark arrester plates (front and rear).

(4) Remove the charge control plate cleaner.
(5) Remove the spring and remove the charging wire.

(6) Reinstall the above parts following the removal steps in reverse.
[5] Removing and Reinstalling the Charging Wire Cleaning Unit
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the charging wire.
(2) Remove the stop ring and remove the charging wire cleaning pad.
Caution1: When removing the charging wire cleaning pad, be careful not to drop the two collars.


Caution2: When installing the charging wire cleaning pad, install the pad in the orientation shown below. Also, do not forget to attach the two collars.

(3) Reinstall the above parts following the removal steps in reverse.
[6] Removing and Reinstalling the PCL $\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the charging corona unit.
(2) Disconnect the wire binding band at two locations.
(3) Release the lock and remove the PCL.

(4) Reinstall the above parts following the removal steps in reverse.
4. Caution: When the urethane sheet is peeled off from PCL, be sure to paste it again. (7272/7255)


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## [7] Cleaning the Charging Corona Unit/ PCL

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the charging corona unit.
(2) Remove the charge control plate and PCL.
(3) Place the charge control plate on a flat surface and clean by gently tapping with a cleaning pad moistened with drum cleaner. Next, remove any remaining dirt with a blower brush.

Caution: Take care not to damage the mesh of the charge control plate during cleaning.
(4) Clean the PCL with a cleaning pad moistened with drum cleaner.

[8] Removing and Reinstalling the Transfer/Separation Corona Unit

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw the ADU frame from the main body. (See "ADU UNIT.")
(2) Loosen two screws to remove the transfer/separation corona unit.

(3) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the transfer/separation corona unit, make sure the cleaning gear coupling is engaged properly.

## [9] Removing and Reinstalling the Plunger Prevention Plate

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw the ADU frame from the main body. (See "ADU UNIT.")
(2) Remove the transfer/separation corona unit.
(3) Release the six locks and remove the plunger prevention plate (front).
(4) Release the six locks and remove the plunger prevention plate (rear).

(5) Reinstall the above parts following the removal steps in reverse.
[10] Replacing the Transfer/Separation Wires and Transfer/Separation Wire Cleaning Block

## © Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw the ADU frame from the main body. (See "ADU UNIT.")
(2) Remove the transfer/separation corona unit.
(3) Remove the plunger prevention plate.
(4) Remove the spark arrester plates (front and rear).

(5) Remove the springs of wires (one each).

Caution: When installing the springs, bend the edge of each spring inside.
(6) Release and remove three wires from each cleaning block.

Caution: Be careful not to drop and lose the support rubber when removing the wire.

(7) Turn the transfer/separation corona unit upside down, remove the stop rings, and remove the transfer wire cleaning block and separation wire cleaning block from the front side.

(8) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the transfer/separation wires, check that the coupling of the cleaning pad drive gear is engaged correctly.

## [11] Removing and Reinstalling the TSL

 Unit$\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw the ADU frame from the main body. (See "ADU UNIT.")
(2) Remove the transfer/separation corona unit.
(3) Remove the relay connector (CN463).

Caution: A relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the CN463 connector.
(4) Remove the three screws and remove the TSL unit.

(5) Reinstall the above parts following the removal steps in reverse.

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## DEVELOPING UNIT

## [1] Screws That Must Not be Removed

a. Procedure
(1) Two screws securing the toner transfer regulation plate.
(2) One screw securing the magnet angle adjusting knob.


## [2] Removing and Reinstalling the Developing Unit

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
(2) Release the toner supply pipe.
(3) Release the developing unit push pressure lever.
(4) Supporting the developing unit at the positions shown below with both hands, remove it from the drum unit.

(5) Reinstall the above parts following the removal steps in reverse.
[3] Replacing the Developer
Caution1: When replacing the developer in the developing unit, take care not to allow dirt to get into it.
Caution2: To rotate the developing sleeve, rotate the developing gear counterclockwise.
Caution3: Never rotate the developing gear clockwise.
4
Caution4: When installing a new developer, be sure to enter mode 25 and select "Copy Count by Parts to be Replaced" to reset developer counter.

a. Procedure
(1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
(2) Remove the developing unit from the drum unit.
(3) Release the hook of the developing unit cover and remove it upward.

(4) Tilt the developing unit about $45^{\circ}$ and rotate the developing gear counterclockwise to discharge all of the developer adhering to the inside of the developing unit and magnet roller.

(5) Supply fresh developer evenly from the top of the agitator screws.
(6) Rotate the developing gear until the developer enters the developing unit.
(7) Repeat steps (5) and (6) to supply all of the developer.


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(8) Rotate the developing gear counterclockwise to check that the developer bristles along the entire length of the developing sleeve.

(9) Install the developing unit cover, then install the developing unit in the drum unit.

Caution: After installing the developing unit in the drum unit, make sure the developing unit stopper roller is in contact with the developing unit stopper plate (allocation of DSD).

## [4] Cleaning the Developing Unit Bias Shaft

## $\triangle$ Caution: <br> Be sure the power cord has been unplugged from the wall outlet.

a. Procedure
(1) Draw out the drum unit from the main body. (See "DRUM UNIT.")
(2) Remove the developing unit from the drum unit.
(3) Wipe the dirt on the developing unit bias shaft with cleaning pad.

(4) Reinstall the above parts following the removal steps in reverse.

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## TONER SUPPLY UNIT

## [1] Replacing and Cleaning the Toner Cartridge

a. Procedure
(1) Open the toner supply door and pull the toner supply unit forward.

(2) Remove the toner cartridge.
(3) After removing the toner cartridge, clean the area around the toner cartridge insertion hole with a cleaning pad.

(4) Reinstall the above parts following the removal steps in reverse.

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## CLEANING/TONER RECYCLE UNIT

## [1] Removing and Reinstalling the Cleaning Blade

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
Caution1: Be sure to replace the following parts at the same time:

- Cleaning blade
- Toner guide roller (TGR)

Caution2: Do not touch the edges of the cleaning blade with bare hands.
Caution3: When reinstalling the cleaning blade, apply setting powder to the entire surface of the drum and cleaning blade regardless of whether the drum and cleaning blade are new or old.
Caution4: When you have applied setting powder to the drum, perform the following before installing the drum unit on the main body:

1) To ensure accurate toner concentration, wipe scattered setting powder off the $\gamma$ sensor and Dmax/JAM sensor on the toner control sensor board with a rag moistened with alcohol.
2) With the charging corona unit and developing unit removed, turn the drum once (to prevent setting powder from scattering onto the charging corona unit, and to prevent image defects).
a. Procedure
(1) Remove the drum unit. (See "DRUM UNIT.")
(2) Remove the charging corona unit. (See "CHARGING CORONA UNIT.")
(3) Remove the developing unit. (See "DEVELOPING UNIT.")
(4) Remove two screws to remove the cleaner cover.


2 (5) Check that the blade fixing component is released. If it is not, release it referring to"DRUM UNIT."

(6) Remove the blade support bearing to remove the cleaning blade.

(7) Reinstall the above parts following the removal steps in reverse.
Caution: After replacing the cleaning blade, be sure to perform Blade Setting Mode Adjustment in the 36 mode. (To prevent the blade from peeling.)

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## [2] Removing and Reinstalling the Toner Guide Roller (TGR)

$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
Caution1: Be sure to replace the following parts at the same time:

- Cleaning blade
- Toner guide roller

Caution2: Do not touch the edges of the cleaning blade with bare hands.
Caution3: When reinstalling the cleaning blade, apply setting powder to the entire surface of the drum and cleaning blade regardless of whether the parts are new or old.
Caution4: When reinstalling the toner guide roller, apply setting powder to the toner guide roller evenly. Apply with the toner guide roller removed from the drum unit.
Caution5: Do not touch the toner guide roller brush with bare hands. Also, do not directly contact the rollers to any object.
Caution6: After replacing the toner guide roller, be sure to apply electricity lubricant on the edge of the guide roller shaft (on power supply pin side).
4 Caution7: When installing a toner guide roller, be sure to enter mode 25 and select "Copy Count by Parts to be Replaced" to reset toner collection roller assembly counter.
a. Procedure
(1) Remove the drum unit. (See "DRUM UNIT.")
(2) Remove the charging corona unit. (See "CHARGING CORONA UNIT.")
(3) Remove the cleaning blade.
(4) Release the power supply pin in contact with the toner guide roller shaft.
(5) Remove the stop ring.
(6) Remove the cleaner idle gear.
(7) Remove the screws securing the front and rear positioning parts.
(8) Remove the toner guide roller.

(9) Reinstall the above parts following the removal steps in reverse.

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## PAPER FEED UNITS OF TRAYS 1 AND 2 (7155/7165)

## [1] Removing and Reinstalling the Paper Feed Unit

$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 1 or 2 .
(2) Loosen the securing shaft screw, and remove one screw.
(3) Disconnect the relay connector (CN814, 834) and remove the paper feed unit by lifting.

(4) Reinstall the above parts following the removal steps in reverse.
[2] Removing and Reinstalling the Paper Feed Trays 1 and 2
© Warning:
When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 1 or 2.
(2) Remove the paper feed unit.
(3) Remove four screws and remove tray 1 or 2 by lifting.

(4) Reinstall the above parts following the removal steps in reverse.

## [3] Removing and Reinstalling the Paper Feed Roller and Feed Roller Rubber

a. Procedure
(1) Remove the paper feed unit.
(2) Remove the two stop rings and slide the two bearings outward.
(3) Release the feed roller axis from the holder slit to detach the paper feed roller unit.

(4) Remove the two stop rings from the paper feed roller unit to detach the paper feed roller and feed roller.
(5) Remove the rubber from each roller.

(6) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling the rollers, pay attention to their orientation.
Caution2: Check that no grease or the like remains on each roller.

## [4] Removing and Reinstalling the DF Prevention Roller Rubber

a. Procedure
(1) Remove the paper feed unit.
(2) Remove the paper feed roller unit.
(3) Remove the stop ring to detach the double feed prevention roller.
(4) Remove the double feed prevention roller rubber from the roller.

(5) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling the double feed prevention roller, pay attention to their orientation.
Caution2: Check that no grease or the like remains on the double feed prevention roller.

## [5] Replacing the Pre-Registration and Feed Clutches (MCs)

a. Procedure
(1) Remove the paper feed unit.
(2) Remove the four connectors (CN810, 811, 830, 831).
(3) Remove the stop ring to detach the pre-registration MC/1/2 (MC4/6) and feed MC/1/2 (MC3/5).

(4) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling each MC, fit the detent in the slit in the MC.

## [6] Replacing the Wires

Caution1: After replacing or reinstalling the wires, manually rotate the up/down drive shaft to check that the tray moves up and down smoothly.
Caution2: Be sure to install the wires so that they do not cross or ride over each other.
Removing Wires
(1) Remove the paper feed unit.
(2) Remove three screws to remove the wire cover(front) and wire cover (rear).

(3) Remove the front and rear wires according to steps 1 to 7 below.


Wire Lengths
$\square$
Installing Wires
2. Install the pulley, pass
wire D through the pulley,
and install the wire
restraining cover and
E-ring.

## PAPER FEED UNITS OF TRAYS 1 AND 2 (7255/7272)

## $\triangle$ Caution:

Trays 1 and 2 have the same shape and mechanism.
[1] Removing and Reinstalling the Paper Feed Unit
The contents here shall be in accordance with the "[1] Removing and Reinstalling the Paper Feed Unit" of PAPER FEED UNITS OF TRAY 1 and 2 ( $7155 / 7165$ ).
[2] Removing and Reinstalling the Paper Feed Tray 1
$\triangle$ Warning:
When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 1.
(2) Remove the paper feed unit.
(3) Remove four screws and remove the LCT cover /L.


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(4) Remove five screws to detach the tray 1 by lifting.

(5) Reinstall the above parts following the removal steps in reverse.

## [3] Removing and Reinstalling the Paper

 Feed Tray 2
## $\triangle$ Warning:

When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 2.
(2) Remove the paper feed unit.
(3) Remove five screws and remove the LCT cover /R.


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(4) Remove five screws to detach the tray 2 by lifting.

(5) Reinstall the above parts following the removal steps in reverse.
4. [4] Removing and Reinstalling the Paper Feed Roller and Feed Roller Rubber
a. Procedure
(1) Remove the paper feed unit.
(2) Remove the two stop rings and slide the two bearings outward.
(3) Release the feed roller axis from the holder slit to detach the paper feed roller unit.

(4) Remove the two stop rings from the paper feed roller unit to detach the paper feed roller and feed roller.

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(5) Remove the rubber from each roller.

(6) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling the rollers, pay attention to their orientation.
Caution2: Check that no grease or the like
remains on each roller.

## 4. [5] Removing and Reinstalling the DF Prevention Roller Rubber

The contents here shall be in accordance with the "[4] Removing and Reinstalling the Double
Feed Prevention Roller Rubber" of PAPERFEED UNITS OF TRAY 1 AND 2 (7155/7165).

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## [6] Replacing the Pre-Registration and

 Feed Clutches (MCs)The contents here shall be in accordance with the "[5] Replacing the Pre-registration and Feed Clutches (MCs)" of PAPER FEED UNITS OF TRAY 1 and 2 (7155/7165).
4. [7] Replacingthe Horizontal Conveyance MC/L and /R
a. Procedure
(1) Remove the vertical conveyance section. (See "VERTICAL CONVEYNACE SECTION")
(2) Draw out the horizontal conveyance section and tray 2.
(3) Remove two relay connectors (CN902, 903).
(4) Remove a screw to detach the sensor mounting plate.
(5) Remove a stop ring for each, detach the horizontal conveyance MC/L (MC15) and horizontal conveyance MC/R (MC16).

(6) Reinstall the above parts following the removal steps in reverse.

Caution: When installing, align the projections with the detent guides.

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## 4

## [8] Replacing the Wires

Caution1: After replacing or reinstalling the wires, manually rotate the up/down drive shaft to check that the tray moves up and down smoothly.
Caution2: Be sure to install the wires so that they do not cross or ride over each other.
Removing Wires
(1) Remove the paper feed unit.
(2) Remove two screws for each to remove the wire cover (front) and wire cover (rear).


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(3) Remove the wires A and B according to steps 1 to 10 of the figure below.

to release the wire B (white).

2. Remove the bearing.
9. Remove the E-ring, slide the drive pulley outward, and remove the wire A (black) from the drive shaft.

4. Remove the E-ring.
5. Remove the pulley and wire restraining cover to release the wire A (black) and B (white).

3. Remove the E-ring, slide the drive pulley in ward, and remove the wire $B$ (white) from the drive shaft.


1. Remove the E-ring and bearing to detach the gear assembly.

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(4) Remove the wires $C$ and $D$ according to steps 1 to 8 of the figure below.


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Wire Lengths

<Installing Wires>
Reinstall the wires following the removal steps in reverse.

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## PAPER FEED UNIT OF TRAY 3 (7155/7165)

## [1] Removing and Reinstalling the Paper Feed Unit

$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 3.
(2) Loosen the securing shaft screw, and remove one screw.
(3) Disconnect the relay connector (CN854) and remove the paper feed unit by lifting.

(4) Reinstall the above parts following the removal steps in reverse.
[2] Removing and Reinstalling Paper Feed Tray 3
$\triangle$ Warning:
When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 3.
(2) Remove the paper feed unit.
(3) Remove four screws and remove tray 3 by lifting.

(4) Reinstall the above parts following the removal steps in reverse.

## [3] Removing and Reinstalling the Paper Feed Roller and Feed Roller Rubber

a. Procedure
(1) Remove the paper feed unit.
(2) Remove two stop rings and slide the two bearings outward.
(3) Release the feed roller axis from the holder slit to detach the paper feed roller unit.

(4) Remove two stop rings from the paper feed roller unit to detach the paper feed roller and feed roller.
(5) Remove the rubber from each roller.

(6) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling the rollers, pay attention to their orientation.
Caution2: Check that no grease or the like remains on each roller.

## [4] Removing and Reinstalling the DF Prevention Roller Rubber

a. Procedure
(1) Remove the paper feed unit.
(2) Remove the paper feed roller unit.
(3) Remove the stop ring to detach the double feed prevention roller.
(4) Remove the double feed prevention roller rubber from the roller.

(5) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling the double feed prevention roller, pay attention to their orientation.
Caution2: Check that no grease or the like remains on the double feed prevention roller.

## [5] Replacing the Pre-Registration and Feed Clutches (MCs)

a. Procedure
(1) Remove the paper feed unit.
(2) Remove two connectors (CN850, 851).
(3) Remove two stop rings to detach the pre-registration MC/3 (MC8) and feed MC/3 (MC7).

(4) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling each MC, fit the detent in the slit in the MC.

## [6] Replacing the Wires

Caution1: After replacing or reinstalling the wires, manually rotate the up/down drive shaft to check that the tray moves up and down smoothly.
Caution2: Be sure to install the wires so that they do not cross or ride over each other.
Removing Wires
(1) Remove the paper feed unit.
(2) Remove two claws to remove the tray front cover.
(3) Remove two screws to remover shaft supporting plate.
(4) Remove three screws to remove the wire cover(front) and wire cover (rear).

(5) Remove the front and rear wires according to steps 1 to 7 below.


Wire Lengths


Installing Wires


## PAPER FEED UNITS OF TRAYS 3 AND 4 (7255/7272)

## $\triangle$ Caution:

Trays 3 and 4 have the same shape and mechanism.
[1] Removing and Reinstalling the Paper Feed Unit
The contents here shall be in accordance with the "[1] Removing and Reinstalling the Paper Feed Unit" of PAPER FEED UNITS OF TRAY 1 AND 2 (7155/7165).

44 [2] Removing and Reinstalling the Paper Feed Tray 3 and 4
$\triangle$ Warning:
When removing the tray, stand in a proper position so that you do not hurt your back and waist. If the tray contains paper, remove all paper before removing the tray.
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out paper feed tray 3.
(2) Remove the paper feed unit.
(3) Remove eight screws and detach the tray 3 by lifting.

(4) Reinstall the above parts following the removal steps in reverse.

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4
[3] Removing and Reinstalling the Paper Feed Roller and Feed Roller Rubber
The contents here shall be in accordance with the "[4] Removing and Reinstalling the Paper Feed Roller and Feed Roller Rubber" of PAPER FEED UNITS OF TRAY 1 AND 2 (7255/7272).

4 [4] Removing and Reinstalling the DF Prevention Roller Rubber
The contents here shall be in accordance with the "[4] Removing and Reinstalling the Double Feed Prevention Roller Rubber" of PAPER FEED UNITS OF TRAY 1 AND 2 (7155/7165).

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4. [5] Replacing the Pre-registration and Feed Clutches (MCs)
The contents here shall be in accordance with the "[5] Replacing the Pre-registration and Feed Clutches (MCs)" of PAPER FEED UNITS OF TRAY 1 and 2 (7155/7165).
5. [6] Replacing the Wires

The contents here shall be in accordance with the "[6] Replacing the Wires" of PAPER FEED UNITS OF TRAY 1 and 2 ( $7155 / 7165$ ).

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## BYPASS FEED TRAY

## [1] Removing and Reinstalling the Bypass Feed Tray

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the developing suction filter cover and right side cover (upper). (See "EXTERNAL SECTION.")
(2) Remove the connector (CN214).
(3) Remove five screws to remove the bypass feed tray.

(4) Reinstall the above parts following the removal steps in reverse.

## [2] Replacing the Paper Feed Roller/ Paper Feed Roller Rubber

a. Procedure
(1) Remove the bypass feed tray.
(2) Remove the stop ring and bearing and pull out the shaft from the paper feed roller.
(3) Remove the two bearings and one gear and remove the paper feed roller rubber from the paper feed roller.

(4) Remove the stop ring from the paper feed roller assembly to pull out the shaft and remove the paper feed roller rubber from the paper feed roller.

(5) Reinstall the above parts following the removal steps in reverse.
Caution1: Check that the orientation of the roller is correct when installing.
Caution2: Check that no grease or the like remains on the roller.

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## [3] Replacing the DF Prevention Roller Rubber

a. Procedure
(1) Remove the bypass feed tray and place the tray upside down.
(2) Remove two screws to remove the bottom plate assembly.
(3) Remove the spring.

(4) Remove the double feed prevention roller assembly from the bypass feed tray unit.
(5) Remove the stop ring to pull out the shaft and remove the double feed prevention roller rubber from the double feed prevention roller.

(6) Reinstall the above parts following the removal steps in reverse.
Caution1: Check that the orientation of the double feed prevention roller is correct when installing.
Caution2: Check that no grease or the like remains on the double feed prevention roller.
Caution3: There are three spring holes. Insert the spring in the middle hole.

## VERTICAL CONVEYANCE SECTION

## [1] Removing/Reinstalling the Vertical Conveyance Section

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove all right side covers. (See "EXTERNAL SECTION.")
(2) Disconnect the connector (CN880).
(3) Remove eleven screws to remove the vertical conveyance section.

(4) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the vertical conveyance section, be sure to secure the screws with the vertical conveyance door closed.
[2] Removing/Reinstalling the Vertical Conveyance MC (MC11, MC12)

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the vertical conveyance section.
(2) Remove the gear lock to remove the two gears and two spacer axes.
(3) Disconnect the two connectors (CN881, CN882) to remove the wiring harness from the harness guide.
(4) Remove each MC.

(5) Reinstall the above parts following the removal steps in reverse.

Caution: When installing, be sure the detent of the clutch is at the position shown above.

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## ADU UNIT

## [1] Drawing Out and Reinstalling the ADU Stand

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Open the front right and left doors.
(2) With the solenoid release lever on the ADU stand pushed to the left, turn down the ADU drawing lever to the left.
(3) Grip the ADU stand drawing lever and draw out the ADU stand.

(4) To reinstall the ADU stand, push in the ADU stand and then turn the ADU stand drawing lever upright.

## [2] Cleaning the Paper Dust Removing Brush

In the case of the 7155/7165
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Release the left and right lock levers, lift the brush handles by the handles to remove the paper dust removing brush.

(3) Using a blower brush, clean the paper dust removing brush.

(4) Reinstall the above parts following the removal steps in reverse.

Caution: When installing, align the projection on the paper dust removing brush with the positioning hole on the second paper feed unit.

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4 In the case of the 7255/7272

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
b. Procedure
(1) Draw out the ADU stand from the main body.
(2) Push two projections for each to release the lock and remove the paper dust removing brush.


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## [3] Cleaning the Paper Mis-Centering PS (PS70)/Leading Edge PS (PS43)

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Open the pre-transfer jam handler. Clean the sensor of the paper mis-centering PS (PS70) and leading edge PS (PS43) at the rear of the pre-transfer jam handler using a drum cleaner or cleaning pad.

(3) Reinstall the above parts following the removal steps in reverse.
[4] Removing and Reinstalling the Registration MC (MC1)

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## © Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove one screw to remove the ADU stand drawing lever.

(3) Remove three screws to remove the ADU cover.

(4) Remove one screw and remove the registration roller rotation knob.
4

(5) Disconnect the relay connector (CN422).

Caution: A relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the CN422 connector.
4 (6) Loosen two hexagon socket head screws.
4 (7) Remove the screw to detach the clutch fixing member.
(8) Detach the registration MC (MC1).

Caution: When reinstalling, be sure the detent of the clutch is in the clutch cover groove.

(9) Reinstall the above parts following the removal steps in reverse.

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## [5] Removing and Reinstalling the Second Paper Feed Unit

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Detach the ADU cover.
(3) Disconnect the two relay connectors (CN420, 422), and disconnect the relay connector from the wiring harness.

Caution: Each relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the connector.


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(4) Remove five screws to remove the second paper feed unit.

(5) Reinstall the above parts following the removal steps in reverse.
[6] Cleaning the Registration PS (PS44)

## \ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Detach the ADU cover.
(3) Remove the second paper feed unit
(4) Turn the second paper feed unit upside down and clean the registration PS (PS44) with a blower brush.

(5) Reinstall the above parts following the removal steps in reverse.

## [7] Removing and Reinstalling the Registration Roller

 In the case of the 7155/7165\ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Detach the ADU cover.
(3) Remove the second paper feed unit
(4) Remove the registration MC (MC1).
(5) Turn the second paper feed unit upside down and remove the E-ring on the front of the registration roller.
(6) Remove the two E-rings (one at the left and the other at the right) and one bearing from the registration roller.

(7) Slide the registration roller to the front, then remove it by lifting the rear end.

(8) Reinstall the above parts following the removal steps in reverse.

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## In the case of the 7255/7272

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
b. Procedure
(1) Draw out the ADU stand from the main body.
(2) Detach the ADU cover.
(3) Remove the second paper feed unit.
(4) Remove the registration MC (MC1).
(5) Turn the second paper feed unit upside down and remove the two E-rings on the front of the registration roller.
(6) Remove the two E-rings at the rear of the registration roller.
(7) Remove the two bearings (one at the left and the other at the right) from the registration roller.

(8) Slide the registration roller to the front, then remove it by lifting the rear end.
(9) Remove the bearing from the registration roller.

(10) Reinstall the above parts following the removal steps in reverse.

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[8] Removing and Reinstalling the Pre-Transfer Roller

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the two springs.
(3) Open the pre-transfer jam handler to remove the pre-transfer roller assembly.

(4) Remove the E-ring to remove the pre-transfer roller from the shaft.

Caution: When reinstalling, pay attention to the position of the E-ring.

(5) Reinstall the above parts following the removal steps in reverse.
[9] Cleaning the ADU Paper Reverse PS (PS45)/Reverse/Exit PS (PS46)
$\triangle$ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the ADU cover.
(4) Remove one screw to remove the ground plate.
(5) Remove the open/close spring from the paper exit side open/close wire.

(6) Remove two screws to remove the open/close wire assembly.
(7) Remove two screws to remove the ADU reverse guide assembly.

Caution: When reinstalling, align the projection on the rear of the ADU reverse guide assembly with the hole on the ADU bottom plate assembly.

(8) Remove the nine screws illustrated from the bottom of the ADU stand.

(9) Remove one screw while holding the ADU bottom plate assembly to remove the paper feed side open/close wire.

Caution: Be sure to hold ADU bottom plate assembly when removing the screws because the ADU bottom plate assembly becomes free when the paper feed side open/close wire is removed.

(10) Lower the ADU bottom plate assembly straight down and remove the ADU guide cover.

(11) Clean the ADU paper reverse PS (PS45) and reverse/exit PS (PS46) with a blower brush.

(12) Reinstall the above parts following the removal steps in reverse.

## [10] Removing and Reinstalling the ADU Reverse Roller

\ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.
$\triangle$ Caution:
Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the ADU cover.
(4) Remove the ADU guide cover.
(5) Remove the screw to remove two wiring harnesses.
(6) Remove E-ring (1) to remove the paper eject reverse gear (1) and pin.
(7) Remove E-ring (2) to remove the rear side bearing.
(8) Remove E-ring (3) to remove the front side bearing.
(9) Slide the ADU reverse roller to the upper side and then to the lower side to slide it out.
 steps in reverse.
[11] Removing and Reinstalling the ADU Stand

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Warning:

Removal and reinstallation of the ADU stand involve carrying a heavy load so it should be performed by two persons.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the transfer/separation corona unit. (See "CORONA UNIT.")
(4) Remove the second paper feed unit.
(5) Remove the front right door and the front left door. (See "EXTERNAL SECTION.")

(6) Remove one screw (in the case of the 7155/ 7165) or loosen one screw (in the case of the 7255/7272) to detach the connector cover.
(7) Remove the screw to loosen the stay.
(8) Disconnect the three relay connectors (CN445, 446, 447).

Caution: Disconnect each connector on the ADU stand.


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(9) Remove one screw to release the lock of the handle(right).
(10) Remove the two screws securing the guide rails on the paper feed side and paper exit side.

Caution: Do not mistake the screws securing the guide rails for screws(black) that must not be removed. (Black screws must not be removed)
(11) To remove the ADU stand, one person holds the handle(right) on the paper-feed side, and the other holds the the handle(left) on the fixing unit. Then, they lift up the ADU stand.

(12) Reinstall the above parts following the removal steps in reverse.
[12] Removing and Reinstalling the Pre-Registration Roller
$\triangle$ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Warning:

Removal and reinstallation of the ADU stand involve carrying a heavy load so it should be performed by two persons.

## © Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Remove the front and rear registration springs.

Caution: When reinstalling, pay attention to the location of the registration spring hook.
(2) Remove the E-ring ( $\phi 6$ )
(3) Press the cleaner coupling and pull out the pin.
(4) Remove the spring.
(5) Remove the front and rear E-rings ( $\phi 8$ ) and remove each bearing.
(6) Slide the ADU pre-registration roller back and forth to remove.

(7) Reinstall the above parts following the removal steps in reverse.
[13] Removing and Reinstalling the ADU Conveyance Roller 3 and 4

## $\triangle$ Warning:

The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## $\triangle$ Warning:

Removal and reinstallation of the ADU stand involve carrying a heavy load so it should be performed by two persons.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the transfer/separation corona unit. (See "CORONA UNIT SECTION.")
(4) Remove the second paper feed unit.
(5) Remove the ADU stand.
(6) Remove two screws to detach the conveyance duct (rear assembly).

(7) Remove two screws to release the high voltage supply unit (1).
(8) Disconnect the two connectors (CN460, 461).

Caution: Each relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the connector.
(9) Remove two screws to remove the conveyance unit.

(10) Disconnect the three connectors (CN421, 426, 427)

Caution: Each relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the connector.
(11) Remove two screws to remove the harness guide plate (front).

(12) Remove four screws to detach the registration drive motor assembly.

(13) Remove the stop rings to remove the ADU deceleration MC (MC2) and ADU conveyance MC (MC13).

(14) Remove the E-ring at the rear, two belt holding collars, ADU conveyance belt (1), and two ADU conveyance pulleys.
(15) Remove the pin from each roller shaft.
(16) Remove the E-ring and bearing on the inside of the ADU conveyance pulley.
(17) Remove the E-ring on the ADU conveyance roller(3) shaft.
(18) Remove the front E-ring and bearing, and remove the ADU conveyance roller (3) and ADU conveyance roller (4) by sliding them back and forth.

(19) Reinstall the above parts following the removal steps in reverse.

## [14] Removing and Reinstalling the ADU Conveyance Roller 1 and 2

\ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## \ Warning:

Removal and reinstallation of the ADU stand involve carrying a heavy load so it should be performed by two persons.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the transfer/separation corona unit. (See "CORONA UNIT.")
(4) Remove the second paper feed unit.
(5) Remove the ADU stand.
(6) Remove the conveyance unit.
(7) Remove the ADU conveyance MC(MC13).
(8) Disconnect the connector (CN407).
(9) Remove three screws to detach the reverse gate solenoid assembly.
(10) Remove one screw to remove the connector cover.
(11) Disconnect the connector (CN415).
(12) Remove three screws to detach the reverse motor assembly.

(13) Disconnect the two connectors (CN403, 404).
(14) Disconnect the connector (CN417).

Caution: Each relay connector consists of two male sides and one female side. Be sure to remove only the male side (shown below) of the connector.
(15) Remove one screw to remove the wiring harness for CN404.
(16) Remove eight screws (three front, five rear) and turn over the fixing attachment rail assembly to the paper exit side.

(17) Remove the E-ring from ADU conveyance roller (2) shaft.
(18) Remove the front E-ring, two belt holding collars, ADU conveyance belt (2), and two ADU conveyance pulleys.
(19) Remove the pin from the shaft of each roller.
(20) Remove the E-ring and bearing inside the ADU conveyance pulley.
(21) Remove the rear E-ring and bearing, and remove the ADU conveyance roller (1) and ADU conveyance roller (2) by sliding them back and forth.

(22) Reinstall the above parts following the removal steps in reverse.

## [15] Removing and Reinstalling the Paper Reverse/Exit Roller

\ Warning:
The interlock which is turned OFF when the front right or left door opens or closes should never be turned ON forcibly with the ADU stand drawn out.

## \ Warning:

Removal and reinstallation of the ADU stand involve carrying a heavy load so it should be performed by two persons.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand from the main body.
(2) Remove the fixing unit. (See "FIXING UNIT.")
(3) Remove the transfer/separation corona unit. (See "CORONA UNIT.")
(4) Remove the second paper feed unit.
(5) Remove the ADU stand.
(6) Remove the conveyance unit.
(7) Remove the ADU conveyance roller (1).
(8) Remove the screw to remove the paper reverse/ exit roller rotation knob.
(9) Remove the front E-ring and remove the bearing.
(10) Remove the rear E-ring to remove the paper exit reverse gear (1) and pin.
(11) Remove the E-ring and remove the bearing.
(12) Remove the paper reverse/exit roller by sliding it back and forth.
 steps in reverse.

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## FIXING UNIT

## [1] Removing and Reinstalling the Fixing Unit

## $\triangle$ Warning:

Do not touch the fixing unit immediately after turning OFF the main power switch because it is very hot and you may suffer burns. Wait until the fixing unit has cooled down sufficiently before working on it.

## $\triangle$ Caution:

Be sure the power cord has been unplugged from the wall outlet.
a. Procedure
(1) Draw out the ADU stand. (See "ADU UNIT.")
(2) Turn the pressure release lever counterclockwise to release the pressure.
(3) Remove two screws and remove the fixing unit by lifting.

Caution: Do not hold the connector socket. Remove by holding the pressure release lever and the holding end at the far side.

(4) Reinstall the above parts following the removal steps in reverse.

Caution: After installing the fixing unit, turn the pressure release lever clockwise and return it to the original position.
[2] Removing and Reinstalling the Fixing Unit (Top)

## $\triangle$ Caution:

Before opening the fixing unit (top), check that the pressure release lever is turned counterclockwise and the bottom roller pressure is released.
a. Procedure
(1) Remove the fixing unit.
(2) Remove one screw to detach the fixing unit front cover.
(3) Remove two screws to open the fixing unit (top).
 steps in reverse.

## [3] Removing and Reinstalling the Web Cover

a. Procedure
(1) Remove the fixing unit.
(2) Remove the fixing unit front cover.
(3) Open the fixing separation claw (upper) unit and remove two screws inside.
(4) Remove two screws to detach the web cover.

(5) Reinstall the above parts following the removal steps in reverse.
[4] Removing and Reinstalling the Cleaning Web
a. Procedure
(1) Draw out the ADU stand. (See "ADU UNIT.")
(2) Remove the web cover.
(3) Remove two screws to remove the cleaning web unit.

(4) Reinstall the above parts following the removal steps in reverse.
Caution1: When reinstalling, make sure the cleaning web does not sag.
Caution2: When reinstalling, wind it until the red line of the cleaning web is fully wound to the take-up shaft.
Caution3: After replacing the cleaning web, make sure to reset the count value of the fixing unit cleaning web by "Copy Count by Parts to be Replaced (Fixed Parts)" in the 25 mode.
[5] Replacing the Fixing Heater Lamps (L2, L3)

## $\triangle$ Caution:

Do not touch the fixing heater lamp with bare hands.
Caution1: Install the heater lamp with the manufacturers mark facing the rear.
Caution2: The heater lamp should not touch the inner surface of the upper roller.
Caution3: When replacing the heater lamp, be sure to insert the lamp end in the lamp terminal securely. Also, check that the Faston terminals are connected correctly.
a. Procedure
(1) Remove the fixing unit.
(2) Remove the fixing unit front cover.
(3) Remove the screw at the front to remove the lamp fixing plate (front).
(4) Remove the front lamp harness from the harness guide to remove the two Faston terminals.

Caution: When removing the Faston terminals, be sure to hold the connector. Connector cannot be removed by pulling on the harness.

(5) Open the fixing unit (top).
(6) Remove the screw at the far side to remove the lamp fixing plate (rear).
(7) Remove the two Faston terminals of the far side lamp.

Caution: When removing the Faston terminals, be sure to hold the connector. Connector cannot be removed by pulling on the harness.

(8) Pull out the fixing heater lamps (L2, L3) from the front side of the fixing upper roller.

(9) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the lamps, pay attention to their orientation. The size of the lamp terminal mounting hole in the front lamp fixing plate is different from that in the rear lamp fixing plate. The lamp cannot be installed properly if it is facing the opposite direction.

## [6] Replacing the Fixing Heater Lamp (L4)

## Caution:

Do not touch the fixing heater lamp with bare hands.
Caution1: Install the heater lamp with the manufacturers mark facing the rear.
Caution2: The heater lamp should not touch the inner surface of the upper roller.
Caution3: When replacing the heater lamp, be sure to insert the lamp end in the lamp terminal securely. Also, check that the Faston terminals are connected properly.
a. Procedure
(1) Open the fixing cover (upper).
(2) Remove the screw at front to remove the lamp fixing plate (lower front).
(3) Remove the Faston terminal.

(4) Remove the rear lamp harness from the two harness guide to remove the Faston terminal.

(5) Pull out the fixing heater lamp (L4) from the front side of the fixing lower roller.

(6) Reinstall the above parts following the removal steps in reverse.

Caution: When installing the lamp, pay attention to its orientation. The lamp cannot be installed properly if it is facing the opposite direction.

## [7] Removing and Reinstalling the Fixing Separation Claw (Upper) Unit and Fixing Separation Claws (Upper)

a. Procedure
(1) Remove the fixing unit.
(2) Remove the fixing unit front cover.
(3) Remove the web cover.
(4) Remove the screw to detach the fixture.
(5) Remove the fixing separation claw (upper) unit

(6) Remove the screw to remove the upper separation claw support shaft from the fixing separation claw (upper) unit.

Caution: Be careful when removing the shaft because it bends easily.
(7) Remove six springs attached to the fixing separation claw (upper) unit.
(8) Remove six fixing separation claws (upper).

(9) Reinstall the above parts following the removal steps in reverse.

Caution: After installing the fixing separation claw (upper), move the upper claws with your finger and check that they return with the force of the spring.
[8] Removing and Reinstalling the Fixing Separation Claw (Lower) Unit and Fixing Separation Claws (Lower)
a. Procedure
(1) Remove the fixing unit.
(2) Open the fixing unit (upper).
(3) Remove two screws to detach the fixing separation claw (lower) assembly.
(4) Remove the three springs from the three fixing separation claws (lower).
(5) Slide the frame holding the fixing separation claws (lower) and remove the three claws.

(6) Reinstall the above parts following the removal steps in reverse.

Caution: After installing the fixing separation claw (lower), check that the frame moves smoothly.

## [9] Removing and Reinstalling the Fixing Upper Roller and Fixing Drive Gear

a. Procedure
(1) Remove the fixing unit.
(2) Remove the fixing unit front cover.
(3) Remove the fixing separation claw (upper) unit.
(4) Open the fixing unit (top).
(5) Remove the fixing heater lamps (L2, L3).
(6) Remove the two C-rings, fixing drive gear, gear, two bearings, two washers (7255/7272: one washer) and two insulating sleeves from the fixing upper roller.
(7) Remove the fixing upper roller from the frame.

(8) Reinstall the above parts following the removal steps in reverse.
Caution1: Before reinstalling the insulating sleeve, coat the inside with Tri-flow.
Caution2: Reinstall the bearings and insulating sleeves with the collars facing the directions shown in the figure.
4. Caution3: When reinstalling the fixing upper roller, the Lot No. or the grooves located on the circumference of the roller edge should be directed toward the front side.
And, refer to the following list for checking the type of the fixing upper rollers.

|  | Number of grooves on <br> the circumference of <br> the roller edge |
| :---: | :---: |
| $7155 / 7255$ | 2 |
| $7165 / 7272$ | None (only Lot No.) |

Caution4: The fixing drive gear of $7155 / 7165$ is different from that of 7255/7272.
The fixing drive gear of $7255 / 7272$ is designated for periodical replacement parts.

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## [10] Removing and Reinstalling the Fixing Lower Roller

a. Procedure
(1) Remove the fixing unit.
(2) Remove two screws to remove the fixing entrance guide plate (lower)

(3) Remove the fixing separation claw (lower) unit.
(4) Remove the fixing lower roller upward.
(5) Remove two bearings from the fixing lower roller.

(6) Reinstall the above parts following the removal steps in reverse.

Caution: The fixing entrance guide plate (lower) should be pressed against the fixing upper roller bearing when installing.

## [11] Removing and Reinstalling the De-Curler Roller

a. Procedure
(1) Remove the fixing unit.
(2) Open the fixing unit (top).
(3) Lift the fixing exit guide plate (upper) and remove two screws to remove the fixing exit guide plate (lower).
(4) Remove the screw to detach the jam handling release knob.
44 (5) From the front side, remove one E-ring, one gear, one E-ring, two washers, one screw, and bearing in this order.
(6) From the rear side, remove one E-ring, two washers, one screw, and bearing in this order and then remove the decurler roller from the frame.


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(7) Reinstall the above parts following the removal steps in reverse.

Caution: When reinstalling, check that the gear is installed correctly.
[12] Removing and Reinstalling the Fixing Temperature Sensors 1 and 2
Caution1: After reinstalling fixing temperature sensor 2, make sure that the sensor touches the fixing upper roller.
Caution2: Make sure the sensor wires do not touch the fixing upper roller.
Caution3: When reinstalling fixing temperature sensor 1 , adjust its position using the positioning jig (7050K0010) and secure it with screws. Be sure to apply screw lock agent to the screws. This adjustment should be made in a pressured state.
a. Removal procedure
(1) Remove the fixing unit.
(2) Remove the web cover.
(3) Remove the cleaning web.
(4) Disconnect the two relay connectors (fixing temperature sensor 1, CN52; fixing temperature sensor 2, CN53) and release the sensor wires from the cable guides.
(5) Remove two screws to detach fixing temperature sensor 1.
(6) Remove one screw to detach fixing temperature sensor 2.

b. Reinstallation procedure
(1) Secure fixing temperature sensor 2 to the fixing plate with a screw.
4. Caution: Be careful not to apply a pressure to the sensor welding portion $[\mathrm{A}]$.
(2) Make sure that fixing temperature sensor 2 touches the fixing upper roller. If they do not touch each other, be sure to bring the sensor in contact with the roller.
(3) Set a fixing temperature sensor positioning jig between fixing temperature sensor 1 and fixing upper roller, and secure fixing temperature sensor 1 with two screws so that the distance between the sensor and roller is equal to the thickness of the jig.

a) Set the distance "a" between the fixing temperature sensor 1 and fixing upper roller so that it is equal to the thickness of the positioning jig.


Standard value of a: $0.75 \pm 0.05 \mathrm{~mm}$
(4) Apply screw lock agent to the two screws securing fixing temperature sensor 1.
(5) Secure the wires of fixing temperature sensors 1 and 2 in the wire guides and connect their connectors.
(6) Reverse the removal procedure to reinstall other parts.

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## [13] Removing and Reinstalling the Thermostat/U (TS1)

$\triangle$ Caution:
This is an important safety part. (P/N: SP00-0020) Be sure to observe the following cautions and steps when removing or reinstalling.
Caution1: After reinstalling the thermostat/U, make sure that its wires do not touch the fixing upper roller.
Caution2: When reinstalling the thermostat/ U , adjust its position using the positioning jig (00M8-1-00) and secure it with screws. Be sure to apply screw lock agent to the screws. This adjustment should be made in a pressured state.
a. Removal procedure
(1) Remove the fixing unit.
(2) Remove the web cover.
(3) Remove the cleaning web.
(4) Remove one screw and two Faston terminals to detach the thermostat/U.

b. Reinstallation procedure
(1) Connect two Faston terminals to the thermostat/ U.
(2) Set a thermostat positioning jig (00M8-1-00) between the thermostat/ $U$ and fixing upper roller and secure the thermostat/ $U$ with one screw so that the distance between the roller and thermostat/ $U$ is equal to the thickness of the jig.

a) Set the distance "a" between the thermostat/ U and fixing upper roller so that it is equal to the thickness (B) of the positioning jig.


Standard value of a: $3.75 \pm 0.25 \mathrm{~mm}$
b) When making the adjustment, make sure that the thermostat/ $U$ does not ride on the positioning jig (C).

(3) Apply screw lock agent to the screw securing the thermostat/U.
(4) Reverse the removal procedure to install other parts.
[14] Removing and Reinstalling the Thermostat/L (TS2)

## $\triangle$ Caution:

This is an important safety part. ( $\mathrm{P} / \mathrm{N}$ : SP00-0010) Be sure to observe the following cautions and steps when removing or reinstalling.
Caution1: After reinstalling the thermostat/L, make sure that its wires do not touch the fixing lower roller.
Caution2: When reinstalling the thermostat/L, adjust its position using the positioning jig (56AEJG011) and secure it with screws. Be sure to apply screw lock agent to the screws. This adjustment should be made in a pressured state.
a. Removal procedure
(1) Remove the fixing lower roller.
(2) Close the fixing cover (top).
(3) Remove the two Faston terminals of the thermostat/L through the fixing entrance side.

(4) Open the fixing cover (top).
(5) Remove two screws to remove the thermostat/L.


## b. Reinstallation procedure

(1) Set a part (a) thermostat/L positioning jig (56AEJG011) between the thermostat/L and the fixing lower roller, and secure the thermostat/L with two screws so that the distance between the thermostat/L and roller is equal to the thickness of the jig.

a) Set the distance "b" between the thermostat/ L and the fixing lower roller so that it is equal to the thickness of the positioning jig.

b) After setting the distance "b", remove the thermostat/L positioning jig, and make sure that the part (b) thermostat/L positioning jig cannot be inserted in a space between the fixing lower roller and the thermostat/L.

(2) Apply screw lock agent to the two screws securing the thermostat/L.
(3) Reverse the removal procedure to reinstall other parts.

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## Konica

## SERVICE MANUAL

Models<br>7155/7165/7255/7272

## Service Section

JANUARY 2004

KONICA MINOLTA BUSINESS SOLUTIONS U.S.A., INC.

# 7155/7165/7255/7272 SERVICE MANUAL 

JANUARY 2004

## IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Minolta Business Solutions U.S.A., Inc. strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Minolta Business Solutions U.S.A., Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

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## SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

## IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Konica Minolta Business Solutions U.S.A., INC. (hereafter called the KMBS) strongly recommends that all servicing be performed only by KMBS-trained service technicians.
Changes may have been made to this copier to improve its performance after this Service Manual was printed. Accordingly, KMBS does not warrant, either explicitly or implicitly, that the information contained in this Service Manual is complete and accurate.
The user of this Service Manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this Service Manual is intended.
Therefore, this Service Manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.
Keep this Service Manual also for future service.

## DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

4 In this Service Manual, each of three expressions " $\triangle$ DANGER", " $₫$ WARNING", and " $\triangle$ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

DANGER :Action having a high possibility of suffering death or serious injury
WARNING:Action having a possibility of suffering death or serious injury
CAUTION :Action having a possibility of suffering a slight wound, medium trouble, and property damage

Symbols used for safety and important warning items are defined as follows:
:Precaution when using the copier.

:Prohibition when using the copier.
:Direction when using the copier.


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## SAFETY WARNINGS

## 4 [1] MODIFICATIONS NOT AUTHORIZED BY

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.
Konica Minolta brand copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.
Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.


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## [2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

4 Konica Minolta brand copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

## 1.Power Supply

## \WARNING: Wall Outlet

- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

If excessive current flows in the wall outlet, fire may result.


## ! WARNING: Power Plug and Cord

- Make sure the power cord is plugged in the wall outlet securely.

Contact problems may lead to increased resistance, overheating, and the risk of fire.

- Check whether the power cord is damaged. Check whether the sheath is damaged.

If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBSKMBS. Using the damaged power cord may result in fire or electric shock.

- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:
a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier.
Secure the cord with a fixture properly.
b. If the power cord or sheath is damaged, replace with a new power cord
(with plugs on both ends) specified by KMBS.
If the power cord (inlet type) is not connected to the copier securely, a
contact problem may lead to increased resistance, overheating, and risk
(with plugs on both ends) specified by KMBS.
If the power cord (inlet type) is not connected to the copier securely, a
contact problem may lead to increased resistance, overheating, and risk
(with plugs on both ends) specified by KMBS.
If the power cord (inlet type) is not connected to the copier securely, a
contact problem may lead to increased resistance, overheating, and risk of fire.

- Check whether the power cord is not stepped on or pinched by a table and so on.

Overheating may occur there, leading to a risk of fire.


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| Do not bundle or tie the power cord. |
| :--- |
| Overheating may occur there, leading to a risk of fire. |
| - Check whether dust is collected around the power plug and wall outlet. |
| Using the power plug and wall outlet without removing dust may result in |
| fire. |
| - Do not insert the power plug into the wall outlet with a wet hand. |
| The risk of electric shock exists. |
| - When unplugging the power cord, grasp the plug, not the cable. |
| The cable may be broken, leading to a risk of fire and electric shock. |

## \WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.

If used, the risk of fire exists.

- When an extension cord is required, use a specified one.

Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
Do not use an extension cable reel with the cable taken up. Fire may result.


## \WARNING: Ground Lead

- Check whether the copier is grounded properly.

If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
a. Ground terminal of wall outlet

b. Ground terminal for which Class D work has been done

## WARNING: Ground Lead

- Pay attention to the point to which the ground lead is connected.

Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
a. Gas pipe (A risk of explosion or fire exists.)
b. Lightning rod (A risk of electric shock or fire exists.)
c. Telephone line ground (A risk of electric shock or fire exists in the case
 of lightning.)
d. Water pipe or faucet (It may include a plastic portion.)

## 2.Installation Requirements

## \. WARNING: Prohibited Installation Place

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.

A risk of fire exists.

- Do not place the copier in a place exposed to water such as rain water.

A risk of fire and electric shock exists.


## \WARNING: Nonoperational Handling

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
Dust collected around the power plug and outlet may cause fire.



## \CAUTION: Temperature and Humidity

- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.
A risk of degradation in copier performance or deformation exists.
Do not place the copier in a place exposed to cool wind.
Recommended temperature and humidity are as follows:
Temperature: $10^{\circ} \mathrm{C}$ to $30^{\circ} \mathrm{C}$


Humidity: $10 \%$ to $80 \%$ (no dew condensation)
Avoid other environments as much as possible.

## \CAUTION: Ventilation

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.

Place the copier in a well ventilated place to prevent machine problems and image faults.


## \CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.

If a bad smell of ozone is present in the following cases, ventilate the room.
a. When the copier is used in a poorly ventilated room
b. When taking a lot of copies

c. When using multiple copiers at the same time

## \CAUTION: Vibration

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.

Constant vibration will cause problems.

## - Be sure to lock the caster stoppers.

In the case of an earthquake and so on, the copier may slide, leading to a injury.

## \CAUTION: Inspection before Servicing

- Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.

If the prescribed procedure or tool is not used, the copier may break and a
 risk of injury or fire exists.

- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.

When the power plug is inserted in the wall outlet, some units are still powere even if the POWER switch is turned OFF. A risk of electric shock exists.


- The area around the fixing unit is hot.

You may get burnt.


## \DDANGER: Work Performed with the Copier Powered

- Take every care when making adjustments or performing an operation check with the copier powered.

If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.


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## DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached.

High-voltage exists around the drum unit. A risk of electric shock exists.


## \WARNING: Safety Checkpoints

- Check the exterior and frame for edges, burrs, and other damages. The user or CE may be injured.
- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.

They can short internal circuits and cause electric shock or fire.

- Check wiring for squeezing and any other damage.

Current can leak, leading to a risk of electric shock or fire.

- When disconnecting connectors, grasp the connector, not the cable.
(Specifically, connectors of the AC line and high-voltage parts)
Current can leak, leading to a risk of electric shock or fire.
- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.

Current can leak, leading to a risk of copier trouble or fire.

- Check high-voltage cables and sheaths for any damage.

Current can leak, leading to a risk of electric shock or fire.


- Check electrode units such as a charging corona unit for deterioration and sign of leakage.

Current can leak, leading to a risk of trouble or fire.

- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.

The laser light can enter your eye, leading to a risk of loss of eyesight.

- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.

The laser light can enter your eye, leading to a risk of loss of eyesight.

- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority. Improper replacement can cause explosion.



## ! WARNING: Safety Checkpoints

- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.

A risk of fire exists.


- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.

If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).


- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

Current can leak, leading to a risk of electric shock or fire.


- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

A risk of copier trouble, electric shock, and fire exists.


## 4. DANGER: HANDLING OF SERVICE MATERIALS

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

If the substances get in the eye, rinse with plenty of water immediately.
 When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.

You may be burned due to dust explosion.


## \DANGER : HANDLING OF SERVICE MATERIALS

- Unplug the power cord from the wall outlet.

Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.

- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.
A risk of fire exists.

- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

A risk of fire exists.


- When using any solvent, ventilate the room well.

Breathing large quantities of organic solvents can lead to discomfort.


## [3] MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.

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2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBS must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBS.
4. For reports and measures concerning serious accidents, follow the regulations given in "Serious Accident Report/Follow-up Procedures".

## [4] CONCLUSION

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

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## SAFETY INFORMATION

## IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

## SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.
[1] Overall protection circuit
[2] L2 and L3 (fixing heater lamps) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

## [1] Overall Protection Circuit



1. Protection by CBR1 and CBR2 (circuit breakers)
CBR1 and CBR2 interrupt the AC line instantaneously when an excessive current flows due to a short in the AC line.

## $\triangle$ CAUTION:

The CBR1 and CBR2 functions must not be deactivated under any circumstances.
[2] Protection by L2, L3 and L4 (fixing heater lamps) overheating prevention circuit


## 1. Protection by software

The output voltage from TH1 (fixing temperature sensor 1 ) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) are turned OFF.

## $\triangle$ CAUTION:

Do not change the gap between the roller and TH1. When replacing TH1, check the specified mounting dimensions. The RL1 function must not be deactivated under any circumstances.
2. Protection by the hardware circuit

The output voltages from TH1 and TH2 (fixing temperature sensors) are compared with the abnormality judgment reference value in the comparator circuit. If the output voltage from TH1 or TH2 exceeds the reference value, L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) are turned OFF in hardware means.

## $\triangle$ CAUTION:

Periodically check the TH2 face contacting the roller, and replace TH2 if any abnormality is detected.
Since TH1 (fixing temperature sensor)
face does not contact the roller, check the distance from the roller and the sensor orientation if any abnormality is detected. The RL1 function must not be deactivated under any circumstances.
3. Protection by TS1 (thermostat/U) and TS2 (thermostat/L)
When the temperature of the fixing roller (upper/lower) exceeds the specified value, TSs are turned OFF, thus interrupting the power to L2 (fixing heater lamp/1), L3 (fixing heater lamp/2), and L 4 (fixing heater lamp/3) directly.

## $\triangle$ CAUTION:

Do not use any other electrical conductor in place of TS1 and TS2. Do not change the distance between the roller and TS (thermostat).

## INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

In the case of the 7155/7165

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

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In the case of the 7255/7272

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

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## $\triangle$ CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

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<SCANNER SECTION>

<WRITE UNIT>
In the case of the 7155/7165


In the case of the 7255/7272


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## <REAR COVER>



## . CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

$\triangle$ CAUTION
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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## ADJUSTMENT

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## HOW TO USE THIS SECTION

## [1] Scope and Precautions

This section provides detailed information about adjustment items and procedures. Before addressing customer complaints, perform the following checks.

1. Check whether the power supply voltage meets the specifications.
2. Check whether the power supply is properly grounded.
3. Check whether this machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that produce electrical noise).
4. Check whether the installation environment is good.
a. High temperature / High humidity, direct sunlight, ventilation, etc.
b. Level of installed location
5. Check whether original has a problem that may cause defective images.
6. Check whether the selected density value is correct.
7. Check whether the platen glass, slit glass, etc. is soiled.
8. Check whether correct paper is used for copying.
9. Check whether copying materials and parts (e.g., developer, drum, and cleaning blade) are replenished and replaced when they reach the end of their useful life.
10. Check whether toner remains.

When servicing the machine, observe the following precautions:
11. Only either side of the AC line is shut off when the SW1 (main power) of this machine is turned off. Always unplug the power cord before starting service work. If it is necessary to service the machine with the power on, take care not to be caught in the scanning gear of the exposure unit.
12. Special care should be taken when handling the fixing unit because it operates at extremely high temperatures.
13. The developing unit has a strong magnetic field. Keep watches and measuring equipment away from it.
14. Take care not to damage the drum with tools and so on.
15. Do not touch IC pins with bare hands.

## ADJUSTMENTS MADE WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a customer complaint about the copy image quality is received, but also after replacing or reassembling parts.

## [How to Read Tables]

Components of the tables used in this section are as follows:

## 1. Mode

Adjustment mode to be selected.
[P]: P mode
[25]: 25 mode
[36]: 36 mode
[47]: 47 mode

## 2. Code

Code and copy quantity setting button used in each mode.

## 3. Page

Page in the "ADJUSTMENT" section.

## 4. Circled numbers

(1) (2) Indicate that adjustments (including checks) must be made in order of precedence.(Circle without numeric character): Indicates that adjustments (including checks) can be made independently.

## 2LIST OF ADJUSTMENT ITEMS

|  |  |  |  | $\begin{array}{r} \underset{\square}{0} \\ \hline \end{array}$ |  |  |  |  |  |  |  |  |  | 1 0 0 0 0 |  | $\stackrel{\rightharpoonup}{\underset{\sim}{c}}$ | $0$ |  | $\begin{aligned} & \frac{0}{2} \\ & \frac{1}{2} \\ & \frac{1}{2} \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Process Adjustment | High voltage adjustment | Charging grid manual adjustment | 1-48 | (1) |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 2 |  | Drum Peculiarity Adjustment | Blade setting mode | 1-49 | (3) |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 3 |  |  | Auto maximum density adjustment | 1-49 | (4) | (2) (1) | (1) |  |  |  |  |  |  |  | O |  |  |  |  |  |
| 4 |  |  | Auto dot diameter adjustment | 1-50 | (5) | (3) (2) | (2) |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 5 |  |  | LD1 offset adjustment | 1-51 |  | (4) (3) |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 6 |  |  | LD2 offset adjustment | 1-52 |  | (5) 4 |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 7 |  |  | Auto gamma adjustment (1dot) | 1-53 |  | (6) 5) | (3) |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 8 |  |  | Auto gamma adjustment (2dot) | 1-54 |  | (7) (6) | (4) |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 9 |  |  | Cartridge set mode | 1-54 | (2) | (1) |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 10 | $\begin{aligned} & \text { Image } \\ & \text { Adjust- } \\ & \text { ment } \end{aligned}$ | Tray Adjustment |  | 1-56 |  |  |  | 0 |  |  |  |  |  |  | O |  |  |  |  |  |
| 11 |  | Magnification Adjustment | Printer vertical magnification adjustment | 1-57 |  |  |  |  |  | 0 | O |  |  |  | O |  |  |  |  |  |
| 12 |  |  | Printer horizontal magnification adjustment | 1-58 |  | 0 |  |  |  |  |  |  |  | 0 | 0 |  |  |  |  |  |
| 13 |  |  | Scanner (platen) vertical adjustment | 1-58 |  |  |  |  |  |  |  |  |  | O | 0 |  |  |  |  |  |
| 14 |  |  | Scanner (RADF) vertical adjustment | 1-59 |  |  |  |  |  |  |  |  |  |  | 0 | O |  |  |  |  |
| 15 |  | Timing Adjust-ment | Printer leading edge timing adjustment | 1-61 |  | 0 |  |  |  | 0 | 0 | O |  |  | 0 |  |  |  |  |  |
| 16 |  |  | Printer registration loop adjustment | 1-61 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 17 |  |  | Printer pre-registration adjustment | 1-62 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 18 |  |  | Printer leading edge timing adjustment | 1-62 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 19 |  |  | Scanner(platen)leading edge timing adjustment | 1-63 |  |  |  |  |  |  |  |  |  | O | 0 |  |  |  |  |  |
| 20 |  |  | Scanner (RADF) leading edge timing adjustment | 1-63 |  |  |  |  |  |  |  |  |  | (0) | 0 | O |  |  |  |  |
| 21 |  |  | Scanner (RADF) registration loop adjustment | 1-64 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 22 |  | RADF Adjustment | RADF density adjustment | 1-65 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 23 |  |  | RADF original size adjustment | 1-65 |  |  |  |  |  |  |  |  |  |  | 0 | O |  |  |  |  |
| 24 |  |  | RADF incline offset adjustment | 1-66 |  |  |  |  |  |  |  |  |  |  | O | O |  |  |  |  |
| 25 |  | Centering Adjustment | Printer centering adjustment | 1-67 |  |  | 0 |  |  |  |  |  | O |  | O |  |  |  |  |  |
| 26 |  |  | Scanner (platen) centering adjustment | 1-67 |  |  |  |  |  |  |  |  |  | O | O |  |  |  |  |  |
| 27 |  |  | Scanner (RADF) centering adjustment | 1-68 |  |  |  |  |  |  |  |  |  | (0) | O | O |  |  |  |  |
| 28 |  | Warp Adjustment (Copier) | Scanner (platen) warp (main scan) | 1-68 |  |  |  |  |  |  |  |  |  | 0 | 0 |  |  |  |  |  |
| 29 |  |  | Scanner (platen) warp (sub-scan) | 1-68 |  |  |  |  |  |  |  |  |  | O | O |  |  |  |  |  |
| 30 |  |  | Scanner (RADF) warp (main scan) | 1-68 |  |  |  |  |  |  |  |  |  | 0 | 0 |  |  |  |  |  |
| 31 |  |  | Scanner (RADF) warp (sub-scan) | 1-68 |  |  |  |  |  |  |  |  |  | O | 0 |  |  |  |  |  |
| 32 | Finisher Adjustment | Stitch and fold stopper adjustment <br> Folding stopper adjustment |  | 1-79 |  |  |  |  |  |  |  |  |  |  | 0 |  | 0 |  |  |  |
| 33 |  |  |  | 1-79 |  |  |  |  |  |  |  |  |  |  | 0 |  | 0 |  |  |  |
| 34 |  | Cover sheet tray size adjustment |  | 1-80 |  |  |  |  |  |  |  |  |  |  | O | 0 |  |  | 0 |  |


|  |  |  |  | $\begin{aligned} & \mathrm{O} \\ & \mathrm{O} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{array}{\|l\|l\|} \hline \frac{E}{3} \\ \hline \end{array}$ |  | $\underset{ \pm}{ \pm}$ |  |  |  |  |  |  |  |  |  | ADU unit | CCD unit |  | Memory board |  |  | 足 |  |  |  |  | N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 35 | Finisher Adjust- | Punch Adjustment | Punch vertical position adjustment |  | 1-81 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  | O | O |
| 36 | ment |  | Punch horizontal position adjustment | 36 | 1-81 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  | 0 | 0 | O |
| 37 |  |  | Punch regist loop adjust- ment ment |  | 1-81-1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  | O | 0 | 0 |  |
| 38 | 1st Z- fold | d position adjus | stment |  | 1-81-1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  | 0 |
| 39 | 2nd Z-fold | d position adjus | tment |  | 1-81-2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  | 0 |
| 40 | Three-fol | d position adjus | stment |  | 1-82 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  | 0 |  |  |  |  |  |
| 41 | 2 position | s staple pitch | adjustment |  | 1-82 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  | O |  |  |  |  |  |
| 42 | Tray Cen | tering Adjustme |  | $\stackrel{0}{c}$ | 1-97 |  |  |  |  |  | 0 |  |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |
| 43 | RADF M | ounting Position | Adjustment | © | 1-108 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |
| 44 | RADF Sk | kew Adjustment |  | \% | 1-109 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |
| 45 | $\begin{aligned} & \text { RADF Pa } \\ & \text { Adjustme } \end{aligned}$ | aper Skew | Face side of original paper | $\frac{0}{2}$ | 1-110 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |
| 46 |  |  | Back side of original paper | $\frac{\bar{\sigma}}{\bar{\sigma}}$ | 1-111 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |
| 47 | PI Cente | ring adjustment |  |  | 1-129 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | (3) |  |  |
| 48 | PK Adjus | ting the Skew of | f Punched Holes Position |  | 1-127 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1) |  |  |
| 49 | PK Adjus Holes | ting the Vertica | Positioning of Punched |  | 1-128 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2) |  |  |
| 50 | Drum Co | unt Reset |  |  | 1-38 | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 51 | Develope | er Count Reset |  | 25 | 1-38 |  | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 52 | Web Cou | unter Reset |  |  | 1-38 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |  |  |

## Caution: Replacing the image control board

- When a damaged image control board is replaced, the memory board on this board must be used on the new image control board.
Only when the memory board is damaged, use a new memory board on a new control board.
Since the new memory board does not have adjustment data, the all adjustments are required. Before making the all adjustments, make the "47mode-92(output) " setting to make the new memory board effective.
- After making any adjustment, make the " 47 mode - 96 (output) setting". After made the " 47 mode- 96 (output)" setting, the adjustment data is saved.
- However, the " 47 mode- 92 " and - 96 " settings are protected to prevent them from careless operation. In order to make " 47 mode -92 " and -96 " settings using the saved adjustment data, the protection must be disabled. For the unprotection method, contact the service manager ot the authorized distributor.

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## LCD ADJUSTMENT

## [1] LCD Control Panel Adjustment

Enter the key operator mode and select " 10 Touch panel adjustment" to adjust the LCD touch panel.
*If you cannot select the touch panel adjustment mode pressing any numeric key after entering key operator mode will take you directly to " (10) Touch panel adjustment".

## [2] LCD Panel Contrast/Key Sound Adjustment

Enter the key operation mode and select " 7 LCD Panel contrast/Key sound adjustment" to adjust the contrast, backlight, and/or buzzer as desired.

## SETTINGS AND ADJUSTMENTS MADE WITH THE P FUNCTION

The P function allows you to perform following numerical value checks using the $P$ button:

1. Total counter
2. Copier counter
3. Printer counter
4.     * PM counter
5. Density Shift (Auto <Text/Photo>)
6. Density Shift (Inclease Contrust)
7. Density Shift (Photo)
8. Density Shift (Text)

* PM counter is only displayed whenCheck key is pressed on the operation panel.
[1] Checking and Printing the P Function

1. Turn ON the SW2 (sub power).
2. Press the $P$ button.
3. Counter list is displayed.
4. Press the COUNTER MENU key.
5. Press the START button to print out the counter list. The P function is cancelled automatically.
6. If the counter list need not be displayed, press the EXIT key.

## [2] Setting up the P Function

1. Turn ON the SW2 (sub power).
2. Press the

SRECIAL
key.
3. Select the required image quality, text, photo etc. Then press the $P$ button to set the desired density shift.
4. Enter a value ( $0-5$ ) with a numeric key, then press the OK key. The smaller the value, the darker the density.
5. Press the $O K$ key to return to the Basic screen.

## MODE CHANGING MENU

## [1] Mode Selection

You can select a mode from the following [Mode changing menu: [Select mode] without turning OFF and ON the power switch.
(1) Basic screen
(2) $3-6$ mode
(3) 2-5 mode
(4) Key operation mode
(5) 4-7 mode


| Step | Operation |
| :---: | :--- |
| 1 | Turn on the SW2 (sub power). |
| 2 | Press P button and wait until [Enter pass- <br> word for mode selection] message <br> appears. |
| 3 | Enter the password 9272 and press the <br> Start button.(Note that this password is <br> fixed and cannot be changed.)The [Mode <br> changing menu] appears. |
| 4 | Enter the number to select the desired <br> mode. |
| 5 | To return to the [Mode changing menu], <br> press P button and wait until the menu <br> appears again. |
| 6 | Upon completion of the adjustment, press <br> EXIT key to return to the Basic screen. |

## 25 MODE

## [1] Setting the 25 Mode

This machine has an adjustment mode called the " 25 Mode". Select this mode to rewrite data in the non-volatile memory or make various settings.

1. Turn OFF the SW2 (sub power).
2. While pressing the copy quantity setting button 2 and 5, turn ON the SW2 (sub power).
The Memory setting mode menu Screen will appear.
Now the machine is in the 25 mode, disabling normal copy operations.

## [Memory setting mode menu Screen]


3. Press the numeric button of the desired setting item.
The associated setting screen will appear.
4. Enter data in the setting screen.
5. Turning OFF the SW2 (sub power) cancels the 25 mode.
6. New data will take effect after restart.

| Adjustment Item Menu |  |  | Remarks |
| :---: | :---: | :---: | :---: |
| (1) | Software DIP SW setting |  | See "list of Software DIP Switches". |
| (2) | Paper size setting |  |  |
| (3) | PM count | Resetting PM Count |  |
|  |  | Setting PM cycle |  |
| 4 | Data collection (7155/7165) | (1) Total count of each paper size |  |
|  |  | (2) Copy count of each paper size |  |
|  |  | (3) Print count of each paper size |  |
|  |  | (4) RADF count |  |
|  |  | (5) Pixel ratio of each section |  |
|  |  | 6) Pixel ratio ranking list |  |
|  |  | 7 JAM data of time series |  |
|  |  | 8 JAM count |  |
|  |  | 9] Count of each copy mode |  |
|  |  | (10) SC count |  |
|  |  | (11) JAM count of each section |  |
|  |  | 112 SC count of each section |  |
|  | Data collection (7255/7272) | (1) Total count of each paper size |  |
|  |  | (2) Copy count of each paper size |  |
|  |  | (3) Print count of each paper size |  |
|  |  | (4) RADF count |  |
|  |  | 5 Scanner count |  |
|  |  | 6 Pixel ratio of each section |  |
|  |  | 7 Pixel ratio ranking list |  |
|  |  | 8) JAM data of time series |  |
|  |  | (9) JAM count |  |
|  |  | (10) Count of each copy mode |  |
|  |  | (11) SC count |  |
|  |  | (12) JAM count of each section |  |
|  |  | SC count of each section |  |
| (5) | Parts counter | (1) Count of special parts | COUNT RESET |
|  |  | (2) Count of each part | COUNT RESET <br> Part name setting <br> P/N setting <br> Limit Setting |
| 6 | Password setting | Key Operator password | 4 digits |
|  |  | EKC master key code | 8 digits |
|  |  | Weekly timer password | 4 digits |
|  |  | HDD management password | 4 digits |
| (7) | Telephone/Fax number setting | Customer support telephone number | 16 digits |
|  |  | Customer support FAX number | 16 digits |


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| Adjustment Item Menu |  |  | Remarks |
| :---: | :---: | :---: | :---: |
| 8 | M/C serial number setting | Main body |  |
|  |  | Optional tray |  |
|  |  | Finisher |  |
| 9 | Indication of ROM version |  | Indication of versions of ROMs installed in the image control, printer control, finisher, and Z-fold. |
| 10 | KRDS setting | (1) Setting Host Call | See Chapter 3. |
|  |  | (2) Setting Host Password |  |
|  |  | 3 Setting KRDS Phone Number |  |
|  |  | 4] Setting KRDS Software SW |  |
|  |  | (5) Setting KRDS Setup |  |
|  |  | (6) Call for maintenance start |  |
|  |  | 7] Call for maintenance end |  |
|  |  | 8) KRDS mail setting |  |
| (11) | ISW updating |  |  |
| (12) | Setting date input |  |  |


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## [3] Setting Software DIP Switches

1. Procedure

Bring up the Software DIP SW Setting screen and set software DIP switches.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Select " 1 Software DIP SW setting". |
| 3 | [Software DIP SW setting screen] Select a DIP switch number. <br> Use the $\boldsymbol{\Delta}$ or $\boldsymbol{\nabla}$ key or numeric keys. <br> To use numeric keys, press the DIP switch number key at the left before entering a DIP switch number. |
| 4 | Select a bit number of the selected DIP switch. <br> Use the $\boldsymbol{\Delta}$ or key or numeric keys. <br> To use numeric keys, press the bit number key at the upper center before entering a DIP switch number. |
| 5 | Select ON (=1), or OFF (=0) of the switch. <br> Use the ON or OFF key. <br> ON: Sets 1. <br> OFF: Sets 0. |
| 6 | Press the RETURN key to return to the Memory setting mode menu Screen. |

For the function of each switch, refer to "list of Software DIP Switches".



Note 1: TSL does not light up at all when "Not lighted" is selected.
When "Lighted" is selected, TSL does not light up for the last one-fifth part of a copy paper divided in the feeding direction but lights up for the remained four-fifth part.
Note 2: When printing from Adobe PS3 driver in duplex mode with image shift function, shift amount of copier (it can set from "APLICATION-Image shift") is used for print job.
0 : Both front and back side is decided by the front side shift amount data of copier.
1: The shift data for each front and back side set in copier is used for duplex print mode.
4 Note 3: The time recalled from low-powered state can be selected from 45 seconds or 30 seconds.
For the temperature set for low-powered state, the temperature set for 30 -second lapse is higher than that for 45 -second lapse.

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|  | $\begin{gathered} \text { DIPSW } \\ \text { No. } \end{gathered}$ | Bit | Function | 0 | 1 | Initial Value |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Japan | Inch | Metric |
| 4 | DIPSW 12 | 0 | Black stripe creation interval | Every 10 copies (7155/7165) <br> Every 12 copies (7255/7272) | Every 50 copies (7155/7165) Every 60 copies (7255/7272) | 0 | 0 | 0 |
|  |  | 1 | Coin vendor paper size signal switchover (7155/7165) | A3 | A3R | 0 | 0 | 0 |
|  |  |  | Shifting from A3 to A3R (7255/7272) | Disabled | Enabled | 0 | 0 | 0 |
|  |  | 2 | - | - | - | 0 | 0 | 0 |
|  |  | 3 | Printer automatic centering correction | Enable | Disable | 0 | 0 | 0 |
|  |  | 4 | High voltage output in 36/47 mode | Not output | Output | 1 | 1 | 1 |
|  |  | 5 | Paper exit direction of booklet mode | Face down | Face up | 0 | 0 | 0 |
|  |  | 6 | - | - | - | 0 | 0 | 0 |
|  |  | 7 | - | - | - | 0 | 0 | 0 |
|  | DIPSW 13 | 0 | Size detection 1 | A5 | $5.5 \times 8.5$ | 0 | 1 | 0 |
|  |  | 1 | Size detection 2 | A4R | $8.5 \times 11 \mathrm{R}$ | 0 | 1 | 0 |
|  |  | 2 | Size detection 3 | $8.5 \times 14$ | F4 | 0 | 0 | 1 |
|  |  | $3$ | Size detection 4 | * 21 | * 21 | 0 | 0 | 0 |
|  |  | $4$ |  |  |  | 0 | 1 | 0 |
|  |  | 5 | F4 size detection | * 22 | * 22 | 0 | 0 | 0 |
|  |  | 6 |  |  |  | 0 | 0 | 0 |
|  |  | 7 | - | - | - | 0 | 0 | 0 |
|  | DIPSW14 | 0 | Size detection 5 (main body) | B4: $11 \times 17 /$ B5: $8.5 \times 11 / \mathrm{B} 5 \mathrm{R}$ | 8K/16K/16KR | 0 | 0 | 0 |
|  |  | 1 | - | B5:8.5x 11 B5R | - | 0 | 0 | 0 |
|  |  | 2 | - | - | - | 0 | 0 | 0 |
|  |  | 3 | Size detection 5 (by-pass feed) | B4: $11 \times 171$ B5: $8.5 \times 11 / \mathrm{B} 5 \mathrm{R}$ | 8K/16K/16KR | 0 | 0 | 0 |
|  |  | 4 | Size detection 5 (platen) | $\mathrm{B} 4: 11 \times 17 /$ $\mathrm{B5}: 8.5 \times 11 / \mathrm{B} 5 \mathrm{R}$ | 8K/16K/16KR | 0 | 0 | 0 |
|  |  | 5 | Size detection 5 (ADF) | $\mathrm{B4}: 11 \times 17 /$ $\mathrm{B5}: 8.5 \times 11 / \mathrm{B} 5 \mathrm{R}$ | 8K/16K/16KR | 0 | 0 | 0 |
|  |  | 6 | Size detection 5 (PI) | B4: $11 \times 17 /$ B5: $8.5 \times 11 / \mathrm{B} 5 \mathrm{R}$ | 8K/16K/16KR | 0 | 0 | 0 |
|  |  | 7 | - | B5:8.5x1/B5R | - | 0 | 0 | 0 |
| (1) | DIPSW15 | 0 | KRDS type selection | Telephone line | E-mail | 0 | 0 | 0 |
| 4 |  |  |  |  |  | 0 | 0 | 0 |
|  |  | 2 | pled | * 23 | * 23 | 0 | 0 | 0 |
|  |  |  |  | * 24 |  | 0 | 0 | 0 |
|  |  | 4 | FNS alarm stop SW | 24 | 24 | 0 | 0 | 0 |
|  |  | 5 | KRDS connection | Disconnected | Connected | 0 | 0 | 0 |
|  |  | 6 | Dmax. value in printer mode | 1.43 | 1.35 | 0 | 0 | 0 |
|  |  | 7 | Large-size table limit change (7255/7272) | Not changed | -20 copies | 0 | 0 | 0 |
| 4 | DIPSW16 | 0 | Remote diagnosis system selection (7255/7272) | KRDS | EP-NET | 0 | 0 | 0 |
| 4 |  | 1 | Copy Reserve Function | Enabled | Disabled | 0 | 0 | 0 |
|  |  | 2 | Index original + RADF double-sided | Disabled | Enabled | 0 | 0 | 0 |
|  |  | 3 | Key counter counting in printer mode | Not counted | Counted | 0 | 0 | 0 |
|  |  | 4 | TC start date indication (P mode) | Indicated | Not indicated | 0 | 0 | 0 |
|  |  | 5 | Non-original area automatic erasure mode | 25 | 25 | 0 | 0 | 0 |
|  |  | 6 | judgement level | 25 | 25 | 0 | 0 | 0 |
|  |  | 7 | E-mail KRDS NIC selection | IP NIC | Copier NIC | 0 | 0 | 0 |
|  | DIPSW17 | 0 | Weekly timer summer time setting | * 26 | * 26 | 0 | 0 | 0 |
|  |  | 1 |  |  |  | 1 | 1 | 1 |
|  |  | 2 |  |  |  | 1 | 1 | 1 |
|  |  | 3 |  |  |  | 0 | 0 | 0 |
|  |  | 4 | Density selection for scanning tab paper | * 27 | * 27 | 0 | 0 | 0 |
|  |  | 5 |  |  |  | 0 | 0 | 0 |
|  |  | 6 |  |  |  | 0 | 0 | 0 |
|  |  | 7 | - | - | - | 0 | 0 | 0 |


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| $\begin{aligned} & \text { DIPSW } \\ & \text { No. } \end{aligned}$ |  | Bit | Function |  | 1 <br> Unavailable | Initial Value |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Japan |  |  |  | Inch | Metric |
| DIPSW18 |  |  | Tray 1's faulty part isolation |  |  | 0 | 0 | 0 |
|  |  | 1 | Tray 2's faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 2 | Tray 3's faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 3 | LCT faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 4 | ADF faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 5 | Folding, stapling and three-holding faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 6 | PI faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 7 | HDD faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  | DIPSW 19 |  | 0 |  |  |  | 0 | 0 | 0 |
|  |  | 1 | Fixing temperature setting switch over | * 28 | * 28 | 0 | 0 | 0 |
|  |  | 2 |  |  |  | 0 | 0 | 0 |
|  |  | 3 |  |  |  | 0 | 0 | 0 |
|  |  | 4 | PZ -fold faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 5 | PK faulty part isolation | Normal | Unavailable | 0 | 0 | 0 |
|  |  | 6 | IP scanner default resolution | * 29 | * 29 | 0 | 0 | 0 |
|  |  | 7 | IP scanner default resolution | 29 | 29 | 0 | 0 | 0 |
| DIPSW20 |  | 0 | Group stapling | Disabled | Enabled | 0 | 0 | 0 |
|  |  | 1 | Original size scanning with shiff function(Note3) | Normal | Original priority | 0 | 0 | 0 |
|  |  | 2 | Stamp page number switching | Based on original | Based on transfer paper | 0 | 0 | 0 |
|  |  | 3 | Keyboard layout | ABC layout | QWERTY layout | 0 | 0 | 0 |
|  |  | 4 |  |  |  | 0 | 0 | 0 |
|  |  | 5 |  | - | - | 0 | 0 | 0 |
|  |  | 6 | - | - | - | 0 | 0 | 0 |
|  |  | 7 | Tandem connection | Disconnected | Connected | 0 | 0 | 0 |
| 4 | DIPSW21 | 0 | Mixed sized print stapling inhibition (IP) | Enabled (realtime output) | Disabled (batch processing) | 0 | 0 | 0 |
|  |  | 1 | LCT size setting in key operator mode | Disabled | Enabled | 0 | 0 | 0 |
|  |  | 2 | Original count display | Displayed | Not displayed | 0 | 0 | 0 |
|  |  | 3 |  | - | - | 0 | 0 | 0 |
|  |  | - |  | - | - | 0 | 0 | 0 |
|  |  | 5 |  | - | - | 0 | 0 | 0 |
|  |  | 6 | Special paper APS response | Disabled | Enabled (except thick paper) | 0 | 0 | 0 |
|  |  | 7 | IP scanner 600/400dpi | Enabled | Disabled | 0 | 0 | 0 |
| 4 | DIPSW22 | 0 | IP address setting | Inhibited | Allowed | 1 | 1 | 1 |
|  |  | $\begin{array}{\|l\|} \hline 1 \\ \hline 2 \\ \hline \end{array}$ | Number of punched holes | * 30 | * 30 | 0 | 1 | 0 |
|  |  | 3 | Image reference position of unspecified size of paper | - | - | 0 | 0 | 0 |
|  |  | 4 | Power save button function | Enabled | Disabled | 0 | 0 | 0 |
|  |  |  | Correspondence of PZ-109 (7155/7165) | Not correspond | Correspond | 0 | 0 | 0 |
|  |  | 5 | Automatic punch hole switching unit (7255/ 7272 ) | Not provided | Provided | 0 | 0 | 0 |
|  |  | 6 | FNS no staple operation | Staple supply requested | Requestor staple supply and stapling canceled | 0 | 0 | 0 |
|  |  | 7 | JAM indication screen type | Position | Illustration | 0 | 0 | 0 |

Note 3: When "Normal" is selected, the original size is compared with the copy paper size and the smaller one is assumed to be the image area size. When "Original priority" is selected, the original size is compared assumed to be the image area size only when the image shift mode is selected.

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-13$ | REPLACEMENT |


| DIPSW <br> No. | Bit | Function | 0 | 1 | Initial Value |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Japan | Inch | Metric |
| DIPSW27 | 0 | Image's gray background control at power ON (toner density reduction control) *32 | Not performed | Performed | 0 | 0 | 0 |
|  | 1 | Image's gray background control at power ON (toner recycle MC control during printing) *32 | Not performed | Performed | 0 | 0 | 0 |
|  | 2 | Toner supply operation (use prohibited) | Performed | Not performed | 0 | 0 | 0 |
|  | 3 | Image's gray background control at power ON <br> (drum/developer rotation control at power ON after $\gamma$ correction) *32 | Not performed | Performed | 0 | 0 | 0 |
|  | 4 | Image density optimization control (use prohibited) | Performed | Not performed | 0 | 0 | 0 |
|  | 5 | Image's gray background control at power ON <br> (toner recycle MC ON control during drum/ developer rotation performed when the power is turned ON) *32 | Not performed | Performed | 0 | 0 | 0 |
|  | 6 |  |  |  | 0 | 0 | 0 |
|  | 7 | Image's gray background control at power ON (toner recycle MC ON control during Dmax and $\gamma$ correction) *32 | Not performed | Performed | 0 | 0 | 0 |
| DIPSW28 | 0 | Correspondence of Mixplex (IP) | Correspond | Not correspond | 0 | 0 | 0 |
|  | 1 | IP scanner function | Enabled | Disabled | 0 | 0 | 0 |
|  | 2 | Connecting tray 4 (7255/7272) | Disabled | Enabled | 0 | 0 | 0 |
|  | 3 | Limitation of punch function | Selected | Not selected | 0 | 0 | 0 |
|  | 4 | - | - | - | 0 | 0 | 0 |
|  | 5 | Centering adjustment in key operation mode (7255/7272) | Not available | Available | 0 | 0 | 0 |
|  | 6 | - | - | - | 0 | 0 | 0 |
|  | 7 | - | - | - | 0 | 0 | 0 |
| DIPSW29 | 0 | Correspondence of E-mail KRDS (IP) (7155/7165) | Not correspond | Correspond | 0 | 0 | 0 |
|  |  | Correspondence of E-mail KRDS (IP) (7255/7272) | Not correspond | Correspond | 1 | 1 | 1 |
|  | 1 | Correspondence of memory overflow when IP printing | *36 | *36 | 0 | 0 | 0 |
|  | 2 |  |  |  | 0 | 0 | 0 |
|  | 3 | Include of proof copy to the set copy quantity | Not included | Included | 0 | 0 | 0 |
|  | 4 | Detection size at minimum size $5.5 \times 8.5 \mathrm{R}$ (7255/7272) | Special size | $5.5 \times 8.5 R$ | 0 | 0 | 0 |
|  | 5 | - | - | - | 0 | 0 | 0 |
|  | 6 | - | - | - | 0 | 0 | 0 |
|  | 7 | Initialization when connecting HDD (Even though initializing is preset, the setting is shifted from 1 to 0 after the initializing is completed.) (7255/7272) | Not initialized | Initialized (It is turned OFF when the initializing is completed.) | 0 | 0 | 0 |


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|  |  | 0 | - | - | - | 0 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | 25 mode collection data 7-12 for checking | Display restriction | No display restriction | 0 | 0 | 0 |
|  |  | 2 | - | - | - | 0 | 0 | 0 |
|  | DIPSW30 | 3 | - | - | - | 1 | 1 | 1 |
|  |  | 4 | - | - | - | 0 | 0 | 0 |
|  |  | 5 | - | - | - | 0 | 0 | 0 |
|  |  | 6 | - | - | - | 0 | 0 | 0 |
|  |  | 7 | Passwords to save/access hard disk JOB | Not displayed | Displayed | 0 | 0 | 0 |
| 4 |  | 0 | - | - | - | - | - | - |
|  |  | 1 | - | - | - | - | - | - |
|  |  | 2 | - | - | - | - | - | - |
|  | DIPSW32 | 3 | Double-sided copy of non-standard size papers | Disabled | Enabled | 0 | 0 | 0 |
|  |  | 4 | - | - | - | - | - | - |
|  |  | 5 | - | - | - | - | - | - |
|  |  | 6 | - | - | - | - | - | - |
|  |  | 7 | - | - | - | - | - | - |
| 4 |  | 0 |  | *37 | ${ }^{*} 37$ | 0 | 0 | 0 |
|  |  | 1 | Fixing linear velocity adjustment |  |  | 0 | 0 | 0 |
|  |  | $\frac{2}{3}$ | , |  |  | 0 | 0 | 0 |
|  | DIPSW33 | 4 | - | - | - | O | O | O |
|  |  | 5 | - | - | - | - | - | - |
|  |  | 6 | - | - | - | - | - | - |
|  |  | 7 | - | $-$ | - | - | - | - |


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*1 Condition for stopping copying after indication of toner supply request

| Mode | $1-1$ | $1-0$ |
| :---: | :---: | :---: |
| Stops after printing 1,500 copies | 0 | 0 |
| Stops after printing 3,000 copies | 0 | 1 |
| Stops after printing 4,000 copies | 1 | 0 |
| Stops after printing 5,000 copies | 1 | 1 |

*2 Method for stopping copying after indication of toner supply request

| Mode | $1-3$ | $1-2$ |
| :--- | :---: | :---: |
| Stops after ejecting the paper <br> remaining in the machine | 0 | 0 |
| Stops after printing specified num- <br> ber of copies | 0 | 1 |
| Stops at the end of the current job | 1 | 0 |
| Does not stop | 1 | 1 |

*3 Number of copies made before inhibition of copying when PM count is reached

| Mode | $1-7$ | $1-6$ | $1-5$ |
| :--- | :---: | :---: | :---: |
| $\mathbf{1 , 0 0 0}$ copies | 0 | 0 | 0 |
| 2,000 copies | 0 | 0 | 1 |
| 3,000 copies | 0 | 1 | 0 |
| 4,000 copies | 0 | 1 | 1 |
| 5,000 copies | 1 | 0 | 0 |
| 1,000 copies | 1 | 0 | 1 |
| 1,000 copies | 1 | 1 | 0 |
| 1,000 copies | 1 | 1 | 1 |

*4 Electrode cleaning cycle (fixing temperature is $50^{\circ} \mathrm{C}$ or lower when power is turned ON)

| Mode | $2-3$ | $2-2$ | $2-1$ |
| :--- | :---: | :---: | :---: |
| When power is tured ON | 0 | 0 | 0 |
| 5,000 copies | 0 | 0 | 1 |
| 10,000 copies | 0 | 1 | 0 |
| 15,000 copies | 0 | 1 | 1 |
| 20,000 copies | 1 | 0 | 0 |
| 25,000 copies | 1 | 0 | 1 |
| 30,000 copies | 1 | 1 | 0 |
| Not cleaned | 1 | 1 | 1 |

*5 Electrode cleaning cycle (after power is turned ON)

| Mode | $2-5$ | $2-4$ |
| :--- | :---: | :---: |
| 10,000 copies | 0 | 0 |
| 20,000 copies | 0 | 1 |
| 30,000 copies | 1 | 0 |
| 40,000 copies | 1 | 1 |

*7 Image density selection (toner concentration threshold)
These bits set the read level of the toner concentration patch formed on the drum to determine the toner concentration. Against image excessive density, image blur, and toner scattering in all tone areas, the setting should be made by shifting the threshold of black color to the positive side.
Against insufficient density in all tone areas, shift to the negative side.

- Standard -10:The image becomes darker.
- Standard +10 :The image becomes lighter.
- Standard +20 :The image becomes far lighter.

| Mode | $5-1$ | $5-0$ |
| :--- | :---: | :---: |
| Standard | 0 | 0 |
| Standard -10 | 0 | 1 |
| Standard +10 | 1 | 0 |
| Standard +20 | 1 | 1 |

Note: There are three DIP switches to change the image density : 5-0/1 (toner concentration threshold, 5-2/3 (laser PWM), and $23-2 / 3$ (toner density of developer).
The priority of order of these adjustments are as follows :
(1) Laser PWM
(2) Toner density of developer
(3) Toner concentration threshold

3 *8 Image density selection (laser PWM) for copier These bits set image write laser PWM. Against exessive density of $100 \%$ black color, thick letters and lines, and excessive toner consumption, the setting should be made by selecting "light." In the opposite case, select "dark."

| Mode | $5-3$ | $5-2$ |
| :--- | :---: | :---: |
| Darker (255) | 0 | 0 |
| Normal (235) | 0 | 1 |
| Lighter (215) | 1 | 0 |

Note: There are three DIP switches to change the image density :
5-0/1 (toner concentration threshold), 5-2/3 (laser PWM), and 23-2/3 (toner density of developer). The priority of order of these adjustments are as follows:
(1) Laser PWM
(2) Toner density of developer
(3) Toner concentration threshold
*9 Transfer/separation output for plain paper These bits are used when "- - -", "Normal", "Color", "Special" or "Seal" is selected for "Paper type/special size setting" in the key operator mode.
When "User paper" is selected with this bit, the transfer/separation output for the "user paper setting" made in the 36 mode is applied.
When "No specification" is selected, the output data by destination and paper size (metric or inch system) (Japan/metric: $64 \mathrm{~g} / \mathrm{m}^{2}$ plain paper, Inch: 20 lb plain paper, Inch area / Inch: 20 lb plain paper, metric: $80 \mathrm{~g} / \mathrm{m}^{2}$ plain paper, Metric area/metric: $80 \mathrm{~g} / \mathrm{m}^{2}$ plain paper, Inch: 20 lb plain paper) is used.

| Mode | $6-2$ | $6-1$ | $6-0$ |
| :--- | :---: | :---: | :---: |
| No specification | 0 | 0 | 0 |
| Not used | 0 | 0 | 1 |
| Not used | 0 | 1 | 0 |
| Not used | 0 | 1 | 1 |
| Recycled paper 1 (Japan) | 1 | 0 | 0 |
| Recycled paper 2 (Inch area) | 1 | 0 | 1 |
| Recycled paper 3 (Metric area) | 1 | 1 | 0 |
| User paper | 1 | 1 | 1 |

*10 Transfer/separation output for thick paper This bit is used when "Thick" is selected for "Paper type/special size setting" in the key operator mode to change transfer/separation output, linear speed, and fixing temperature.
When "No specification" is selected, standard data for $170 \mathrm{~g} / \mathrm{m}^{2}(45 \mathrm{lb})$ or heavier paper is used.

- $170 \mathrm{~g} / \mathrm{m}^{2}(45 \mathrm{lb})$ or heavier (TSL OFF) : When toner is scattered around the image.
- Plain paper : Transfer / separation data for plain paper of each destination is used to set only the line speed and fixing temperature for thick paper. This setting is applied when the fixing condition is insufficient even though paper is not so thick.

| Mode | $6-4$ | $6-3$ |
| :--- | :---: | :---: |
| No specification | 0 | 0 |
| $170 \mathrm{~g} / \mathrm{m}^{2}(45 \mathrm{Ib})$ or more (TSL OFF) | 0 | 1 |
| Plain paper | 1 | 0 |

*11 Transfer/separation output for thin paper
This bit is used when "Thin" is selected for "Paper type/special size setting" in the key operator mode.
When "No specification" is selected, the output data by destination (Japan: $52.4 \mathrm{~g} / \mathrm{m}^{2}$ paper, Inch area: 16 lb , paper, Metric area: $48 \mathrm{~g} / \mathrm{m}^{2}$ paper) is used.

| Mode | $6-6$ | $6-5$ |
| :--- | :---: | :---: |
| No specification | 0 | 0 |
| $52.4 \mathrm{~g} / \mathrm{m}^{2}(13 \mathrm{lb})$ paper | 0 | 1 |
| $64 \mathrm{~g} / \mathrm{m}^{2}(16 \mathrm{lb})$ paper | 1 | 0 |

*12 Toner guide roller current correction
When the room temperature causes defect cleaning, the bias value of the toner guide roller should be changed to $+10 \mu \mathrm{~A}$ or $+20 \mu \mathrm{~A}$. If the original setting value is changed without any defective cleaning observed, the drum can be damaged, or the toner may be spilled. In this case, the use of copier is never recommended.

| Mode | $7-1$ | $7-0$ |
| :--- | :---: | :---: |
| Standard | 0 | 0 |
| Approx. $+10 \mu \mathrm{~A}$ | 0 | 1 |
| Approx. $+20 \mu \mathrm{~A}$ | 1 | 0 |
| No correction | 1 | 1 |


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*13 Transfer/separation output for recycled paper These bits are used when "Recycle" is selected for "Paper type/special size setting" in the key operator mode.
When "User paper" is selected with these bits, the transfer/separation output for the user paper setting made in the 36 mode is applied. When "No specification" is selected, output data by destination and paper size (metric or inch series) (Japan/metric: $64 \mathrm{~g} / \mathrm{m}^{2}$ recycled paper, Inch: 20 lb recycled paper, Inch area/inch: 20 lb recycled paper, metric: $80 \mathrm{~g} / \mathrm{m}^{2}$ recycled paper, Metric area/metric: $80 \mathrm{~g} / \mathrm{m}^{2}$ recycled paper, inch: 20 lb recycled paper) is used.
When humid paper causes uneven image, select "humid paper $1 / 2 / 3$ ".

| Mode | $7-7$ | $7-6$ | $7-5$ |
| :--- | :---: | :---: | :---: |
| No specification | 0 | 0 | 0 |
| 64 g/m² standard paper <br> (Japan) | 0 | 0 | 1 |
| 20 lb standard paper (USA) | 0 | 1 | 0 |
| log $/ \mathrm{m}^{2}$ standard paper <br> (Europe) | 0 | 1 | 1 |
| Humid paper 1 (Japan) | 1 | 0 | 0 |
| Humid paper 2 (USA) | 1 | 0 | 1 |
| Humid paper 3 (Europe) | 1 | 1 | 0 |
| User paper | 1 | 1 | 1 |

*14 Fixing roller initial rotation
Fixing may be insufficient if the temperature of the place where the machine is installed is low. To prevent this, increase the warm-up time (fixing roller initial rotation time) to allow the fixing roller to be evenly warmed up. This bit specifies the condition(s) under which initial rotation of the fixing roller is required.

- Low temperature: Initial rotation of the fixing roller is carried out only under the low temperature condition.
- Low and normal temperatures: Initial rotation of the fixing roller is carried out under low and normal temperature conditions.
- Low, normal, and high temperatures: Initial rotation of the fixing roller is carried out under low, normal, and high temperature conditions.

| Mode | $8-3$ | $8-2$ |
| :--- | :---: | :---: |
| Low temperature | 0 | 0 |
| Low and normal temperature | 0 | 1 |
| Low, normal, and high tem- <br> peratures | 1 | 0 |
| No initial rotation | 1 | 1 |

*15 Fixing roller initial rotation time setting This bit sets the maximum time of initial rotation of the fixing roller.
7155/7165

| Mode | $8-5$ | $8-4$ |
| :--- | :---: | :---: |
| 2 minutes (Japan) | 0 | 0 |
| 3 minutes (Inch and Metric series) | 0 | 1 |
| 4 minutes | 1 | 0 |
| 10 minutes | 1 | 1 |

(4) $7255 / 7272$

| Mode | $8-5$ | $8-4$ |
| :--- | :---: | :---: |
| 80 seconds <br> (Japan, High temperature and <br> high humidity) <br> 100 seconds <br> (Japan, Except for high tempera- <br> ture and high humidity) <br> 180 seconds <br> (Inch and Metric series, High tem- <br> perature and high humidity) <br> 150 seconds <br> (Inch and Metric series, Except for <br> high temperature and high humid- <br> ity) | 0 | 0 |
| 2 minutes | 0 | 1 |
| 3 minutes | 1 | 0 |
| 4 minutes | 1 | 1 |

*16 Message switching

| Mode | $9-3$ | $9-2$ |
| :--- | :---: | :---: |
| Please insert key counter. | 0 | 0 |
| Please insert copy card. | 0 | 1 |
| Please insert coin. | 1 | 0 |
| Please insert key counter. | 1 | 1 |

*17 Copy count limit

| Mode | $9-7$ | $9-6$ | $9-5$ | $9-4$ |
| :---: | :---: | :---: | :---: | :---: |
| No limit | 0 | 0 | 0 | 0 |
| 1 copy | 0 | 0 | 0 | 1 |
| 3 copies | 0 | 0 | 1 | 0 |
| 5 copies | 0 | 0 | 1 | 1 |
| 9 copies | 0 | 1 | 0 | 0 |
| 10 copies | 0 | 1 | 0 | 1 |
| 20 copies | 0 | 1 | 1 | 0 |
| 30 copies | 0 | 1 | 1 | 1 |
| 50 copies | 1 | 0 | 0 | 0 |
| 99 copies | 1 | 0 | 0 | 1 |
| 250 copies | 1 | 0 | 1 | 0 |
| No limit | 1 | 0 | 1 | 1 |
| No limit | 1 | 1 | 0 | 0 |
| No limit | 1 | 1 | 0 | 1 |
| No limit | 1 | 1 | 1 | 0 |
| No limit | 1 | 1 | 1 | 1 |

*18 Page memory allocation when powered

| Mode | $10-1$ | $10-0$ |
| :--- | :---: | :---: |
| No allocation | 0 | 0 |
| 32 MB (default for DP65) | 0 | 1 |
| 64 MB | 1 | 0 |

*19 Page memory allocation when starts
When memory overflow occurs in a mode where page memory is used, this bit allocates page memory at the start of job to print out copied paper, the data of which was already read in the memory.
Page memory quantity differs as in the following table, according to the number of gradation.

| 1 bit ED | $18 \mathrm{MB}(11 \times 17 \times 2)$ |
| :--- | :--- |
| 2 bit ED | $36 \mathrm{MB}(11 \times 17 \times 2)$ |


| Mode | $10-2$ |
| :--- | :---: |
| No allocation | 0 |
| Allocated | 1 |

When "Allocated" is selected by DIP switch $10-0$ or $10-1$ with power supply ON , this setting has priority.
*20 Transfer/separation out put for high-quality paper
These bits are used when "High-quality" is selected for "Paper type/special size setting" in the key operator mode.
When "No specification" is selected, output data by paper size (metric or inch system) (metric: $64 \mathrm{~g} / \mathrm{m}^{2}$ standard paper, Inch: 20 lb standard paper) is used.

| Mode | $10-7$ | $10-6$ | $10-5$ | $10-4$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| No specification | 0 | 0 | 0 | 0 |
| $64 \mathrm{~g} / \mathrm{m}^{2}(16 \mathrm{lb})$ paper <br> for printing press | 0 | 0 | 0 | 1 |
| $80 \mathrm{~g} / \mathrm{m}^{2}(20 \mathrm{lb})$ paper <br> for printing press | 0 | 0 | 1 | 0 |
| Copied backing <br> papers (7255/7272) | 0 | 0 | 1 | 1 |

*21 Size detection 4

| Destination | Mode | $13-4$ | $13-3$ |
| :--- | :---: | :---: | :---: |
| Metric series | A5R | 0 | 0 |
|  | B6R | 0 | 1 |
| Inch series | $5.5 \times 8.5 \mathrm{R}$ | 1 | 0 |

*22 F4 size detection

| Mode | $13-6$ | $13-5$ |
| :--- | :---: | :---: |
| $8 \times 13$ | 0 | 0 |
| $8.25 \times 13$ | 0 | 1 |
| $8.125 \times 13.25$ | 1 | 0 |
| $8.5 \times 13$ | 1 | 1 |

*23 Maximum number of sheets that can be stapled

| Mode | $15-2$ | $15-1$ |
| :--- | :---: | :---: |
| 50 sheets | 0 | 0 |
| 45 sheets | 0 | 1 |
| 40 sheets | 1 | 0 |
| 35 sheets | 1 | 1 |

*24 FNS alarm stop SW

| Mode | $15-4$ | $15-3$ |
| :--- | :---: | :---: |
| Stop immediately after detection | 0 | 0 |
| Stop at end of copy after detection | 0 | 1 |
| No alarm stop | 1 | 0 |
| No alarm stop | 1 | 1 |


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*25 Selection of area to be erased in non-original area automatic erasure
These bits are used to make a setting associated with the non-original automatic erasure mode (application function).

| Mode | $16-6$ | $16-5$ |
| :--- | :---: | :---: |
| Standard | 0 | 0 |
| Dark original | 0 | 1 |
| Coping with light interfer- <br> ence | 1 | 0 |

*26 Weekly timer summer time setting

| Mode | $17-3$ | $17-2$ | $17-1$ | $17-0$ |
| :--- | :---: | :---: | :---: | :---: |
| 0 minute | 0 | 0 | 0 | 0 |
| 10 minutes | 0 | 0 | 0 | 1 |
| 20 minutes | 0 | 0 | 1 | 0 |
| 30 minutes | 0 | 0 | 1 | 1 |
| 40 minutes | 0 | 1 | 0 | 0 |
| 50 minutes | 0 | 1 | 0 | 1 |
| 60 minutes | 0 | 1 | 1 | 0 |
| 70 minutes | 0 | 1 | 1 | 1 |
| 80 minutes | 1 | 0 | 0 | 0 |
| 90 minutes | 1 | 0 | 0 | 1 |
| 100 minutes | 1 | 0 | 1 | 0 |
| 110 minutes | 1 | 0 | 1 | 1 |
| 120 minutes | 1 | 1 | 0 | 0 |
| 130 minutes | 1 | 1 | 0 | 1 |
| 140 minutes | 1 | 1 | 1 | 0 |
| 150 minutes | 1 | 1 | 1 | 1 |

*27 Density selection for scanning tab paper
The higher the brightness level, the higher the density.

| Mode | $17-6$ | $17-5$ | $17-4$ |
| :--- | :---: | :---: | :---: |
| 80 (brightness level) | 0 | 0 | 0 |
| 40 | 0 | 0 | 1 |
| 60 | 0 | 1 | 0 |
| 100 | 0 | 1 | 1 |
| 120 | 1 | 0 | 0 |
| 160 | 1 | 0 | 1 |
| 200 | 1 | 1 | 0 |
| 255 (not clipped) | 1 | 1 | 1 |

*28 Fixing temperature setting switch over
This setting is performed to change fixing temperature when fixing is insufficient or paper curl is excessive.
This setting is effective only when standard paper is used. Therefore, it is not applied when thick or thin paper is used or temperature is specified in power mode.

- Standard Standard setting value
- Standard+ $\alpha$ Set when fixing is insufficient
- Standard- $\alpha$ Set when paper curl is excessive

| Mode | $19-3$ | $19-2$ | $19-1$ |
| :--- | :---: | :---: | :---: |
| Standard | 0 | 0 | 0 |
| Standard $+5^{\circ} \mathrm{C}$ | 0 | 0 | 1 |
| Standard $+10^{\circ} \mathrm{C}$ | 0 | 1 | 0 |
| Standard $+15^{\circ} \mathrm{C}$ | 0 | 1 | 1 |
| Standard- $5^{\circ} \mathrm{C}$ | 1 | 0 | 0 |
| Standard- $10^{\circ} \mathrm{C}$ | 1 | 0 | 1 |
| Standard- $-15^{\circ} \mathrm{C}$ | 1 | 1 | 0 |
| Standard $+20^{\circ} \mathrm{C}$ | 1 | 1 | 1 |

*29 IP scanner default resolution

| Mode | $19-7$ | $19-6$ |
| :--- | :---: | :---: |
| 400dpi | 0 | 0 |
| 600dpi | 0 | 1 |
| 200dpi | 1 | 0 |
| 300dpi | 1 | 1 |

*30 Number of punched holes

| Mode | $22-2$ | 22-1 |
| :--- | :---: | :---: |
| 2 holes (Japan) | 0 | 0 |
| 3 holes or 2 and 3 holes <br> (Inch area) | 0 | 1 |
| 4 holes or 2 and 4 holes <br> (Metric area) | 1 | 0 |

*31 Image density selection (toner density selection of developer)
These bits set the toner density of developer by changing toner supply threshold and developing sleeve rotation speed with image density unchanged.
Decrease toner density when the image is gray background or toner is scattered. Increase toner density when the image is unevenly transferred or white spots occur.

| Mode | $23-3$ | $23-2$ |
| :--- | :---: | :---: |
| Standard toner density | 0 | 0 |
| Approx. 0.75\% up | 0 | 1 |
| Approx. $0.75 \%$ down | 1 | 0 |
| Approx. $1.5 \%$ down | 1 | 1 |

Note: There are three DIP switches to change the image density : 5-0/1 (toner concentration threshold), 5-2/3 (lase PWM), and 23-2/3 (toner density of developer). The priority of order of these adjustment are as follows:
(1) Laser PWM
(2) Toner density of developer
(3) Toner concentration threshold
*32 Image's gray background control at power ON If an image's gray background problem occurs while making about 100 copies after power ON (the fixing temperature is $50^{\circ} \mathrm{C}$ or lower), set bits $0,1,3,5,6$, and 7 of DIPSW27 to 1 .

Note: When this setting is used, be sure to set six bits to 1 all together. And never set bits 2 and 4 of DIPSW27 to 1.
$7255 / 7272$ models enable to set the control time of DIPSW27-5/6 (turning-ON control of toner recycle MC during drum/developer rotation).

| Mode | $27-6$ | $27-5$ |
| :--- | :---: | :---: |
| None | 0 | 0 |
| 30 seconds | 0 | 1 |
| 45 seconds | 1 | 0 |
| 60 seconds | 1 | 1 |

*33 Maximum number of sheets with z-folding (main tray)

| Mode | $24-5$ | $24-4$ |
| :--- | :---: | :---: |
| Up to 50 sheets | 0 | 0 |
| Up to 40 sheets | 0 | 1 |
| Up to 30 sheets | 1 | 0 |
| Up to 20 sheets | 1 | 1 |

*34 Maximum number of sheets with z-folding + stapling

| Mode | $24-7$ | $24-6$ |
| :--- | :---: | :---: |
| Up to 5 sheets | 0 | 0 |
| Up to 8 sheets | 0 | 1 |
| Up to 10 sheets | 1 | 0 |
| Up to 3 sheets | 1 | 1 |

*35 Image density selection (laser PWM) for IP

| Mode | $8-1$ | $8-0$ |
| :--- | :---: | :---: |
| Normal (235) | 0 | 0 |
| Dark (255) | 0 | 1 |
| Lighter (175) | 1 | 0 |
| Lightest (150) | 1 | 1 |

*36 Countermeasure for memory overflow during IP printing
When copier stops due to paper empty and so on during large amount printing from IP without reserved print, memory overflow will occur on copier, and then time out will occur on PC. When remaining capacity of E-RDH memory is reached to the specified amount, the transmission speed from IP to E-RDH memory will be delayed to gain time until memory overflow occurs.

| Mode | $29-2$ | $29-1$ |
| :--- | :---: | :---: |
| No cuuntermeasure | 0 | 0 |
| Remaining capacity $10 \%$ | 0 | 1 |
| Remaining capacity $20 \%$ | 1 | 0 |
| Remaining capacity $30 \%$ | 1 | 1 |


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4. *37 Fixing linear velocity adjustment

To protect from transfer misalignment, the fixing linear velocity can be adjusted to the conveyance linear velocity.

| Mode | $33-3$ | $33-2$ | $33-1$ | $33-0$ |
| :--- | :---: | :---: | :---: | :---: |
| $0 \%$ | 0 | 0 | 0 | 0 |
| $-0.2 \%$ | 0 | 0 | 0 | 1 |
| $-0.4 \%$ | 0 | 0 | 1 | 0 |
| $-0.6 \%$ | 0 | 0 | 1 | 1 |
| $-0.8 \%$ | 0 | 1 | 0 | 0 |
| $-1.0 \%$ | 0 | 1 | 0 | 1 |
| $-1.2 \%$ | 0 | 1 | 1 | 0 |
| $-1.4 \%$ | 0 | 1 | 1 | 1 |
| $-1.6 \%$ | 1 | 0 | 0 | 0 |
| $+0.2 \%$ | 1 | 0 | 0 | 1 |
| $+0.4 \%$ | 1 | 0 | 1 | 0 |
| $+0.6 \%$ | 1 | 0 | 1 | 1 |
| $+0.8 \%$ | 1 | 1 | 0 | 1 |
| $+1.0 \%$ | 1 | 1 | 0 | 1 |
| $+1.2 \%$ | 1 | 1 | 1 | 0 |
| $+0.4 \%$ | 1 | 1 | 1 | 1 |


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## [4] Setting the Paper Size

When the LCT paper type is changed, it must be stored in the main body. This setting is effective when an optional LCT is added.
Select a paper size among standard, non-standard paper sizes. After selecting a tray size, specify a paper size.

Note: In 7255/7272 models, when tray 1 or 2 is selected, [Non STD size] or [Wide size paper] are not displayed.

1. Setting the standard size

|  | Step | Operation |
| :---: | :---: | :---: |
|  | 1 | Enter the 25 mode. |
|  | 2 | [Memory setting mode menu Screen] <br> Select " (2) Paper size setting". |
| 4 | 3 | [Paper size setting mode Screen] Select necessary tray and press the STD SIZE key. |
|  | 4 | Press the $\square$ or $\square$ button to select a paper size. |
|  | 5 | Press the OK key to finish setting. To cancel the new setting, press the <br> CANCEL key, Pressing either key will display the Memory setting mode menu Screen again. |


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2. Setting the non-standard size

| 4 | Step | Operation |
| :---: | :---: | :---: |
|  | 1 | Enter the 25 mode. |
|  | 2 | [Memory setting mode menu Screen] Select " 2 Tray Size Setting." |
|  | 3 | [Paper size setting mode Screen] Select necessary tray and press the Non STD size key. |
|  | 4 | [Paper size input Screen] Press the key for specifying the main (vertical) scanning direction to highlight it. |
|  | 5 | Press the $\boldsymbol{\Delta}$ or key or numeric keys to enter the size in the main (vertical)scanning direction. Max. 314 mm |
|  | 6 | Press the key for specifying the sub (horizontal) scanning direction to highlight it. |
|  | 7 | Press the $\square$ or $\square$ key or numeric keys to enter the size in the sub (horizontal) scanning direction. Max. 223 mm(LT-402), 459mm(LT-412) |
|  | 8 | Press the OK key to finish setting. To cancel the new setting, press the <br> CANCEL key. <br> Pressing either key will display the Memory setting mode menu Screen again. |

3. Setting the wide paper

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select " (2) Paper size setting." |
| 3 | [Paper size setting mode Screen] Select necessary tray and press the Wide size paper key. |
| 4 | [Paper size selecting Screen] Press the $\boldsymbol{\Delta}$ or key to select a wide paper size. |
| 5 | Input size key. |
| 6 | [Paper size input Screen] Press the key for specifying the main (vertical) scanning direction to highlight it. |
| 7 | Press the $\boldsymbol{\Delta}$ or key or numeric keys to enter the size in the main (vertical) scanning direction. Max. 314 mm |
| 8 | Press the button for specifying the sub (horizontal) scanning direction to highlight it. |
| 9 | Press the $\square$ or $\square$ key or numeric keys to enter the size in the sub (horizontal) scanning direction. Max. 223mm(LT-402), 459mm(LT-412) |
| 10 | Press the $O K$ key to finish setting. To cancel the new setting, press the CANCEL key. <br> Pressing either key will display the Memory setting mode menu Screen again. |

## Reference 1:

Each time the current tray size is changed on this screen, the new setting will be written into the non-volatile memory.

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## [5] PM Count Resetting

Care should be taken not to reset the PM count by mistake.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select " 3 PM count". |
| 3 | [PM count/cycle Screen] <br> Press the COUNT RESET key. |
| 4 | [Reset Confirmation Screen] <br> Press the YES key.The PM count is reset and the start date is input automatically. <br> Pressing the NO key closes the Reset Confirmation screen at once. |
| 5 | Press the OK key to finish setting. To cancel the new setting, press the CANCEL key. <br> Pressing either key will display the Memory setting mode menu Screen again. |

## [6] Setting the PM Cycle

This function allows you to change the PM cycle.
Caution: The PM cycle is factory-set. Use this function to change the factory-set PM cycle.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select " 3 PM count". |
| 3 | [PM count/cycle Screen] <br> Press the PM Cycle Setting key. |
| 4 | After making sure that three digits of the cycle value are displayed in reverse video, enter a desired cycle value using numeric keys. <br> Only the three digits of the cycle value can be entered. The entered digits will be shifted to the left one after another. |
| 5 | Press the OK key to finish setting. To cancel the new setting, press the CANCEL key. <br> Pressing either key will display the Memory setting mode menu Screen again. |

## [7] Collecting Data

This function allows you to view various data retained by the machine.

Reference: The above data can also be viewed using the data collection function of the KRDS.

1. Data that can be Viewed In the case of the 7155/7165

| No. | Data Type | Pre-operation |
| :---: | :--- | :--- |
| 1 | Total count of <br> each paper size |  |
| 2 | Copy count of <br> each paper size |  |
| 3 | Print count of <br> each paper size |  |
| 4 | RADF count |  |
| 5 | Pixel ratio of each <br> section |  |
| 6 | Pixel ratio ranking list |  |

Note: When bit 1 of DIP switch $30-1$ is set to 0 , only collected data 1 to collected data 6 can be viewed.

In the case of the 7255/7272

| No. | Data Type | Pre-operation |
| :---: | :---: | :---: |
| 1 | Total count of each paper size |  |
| 2 | Copy count of each paper size |  |
| 3 | Print count of each paper size |  |
| 4 | RADF count |  |
| 5 | Scanner count |  |
| 6 | Pixel ratio of each section |  |
| 7 | Pixel ratio ranking list |  |
| 8 | JAM data of time series | Enter the 25 mode, select" |
| 9 | JAM count | Software DIPSW |
| 10 | Count of each copy mode | Setting", and set bit 1 of address |
| 11 | SC count | $30-1$ to 1. (Note 1) |
| 12 | JAM count of each section |  |
| 13 | SC count of each section |  |

Note: When bit 1 of DIP switch $30-1$ is set to 0 , only collected data 1 to collected data 7 can be viewed.
2. Viewing Collecting Data No. 1 to No. 6

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select " (4) Data collection". |
| 3 | [Collecting data menu Screen] <br> Select the collecting data you want to view by pressing one of numeric keys <br> (1) to (6) (7155/7165), (1) to (7) (7255/7272). |
| 4 | [Individual data view Screen] View the selected data by scrolling the screen using the $\square$ and keys. |
| 5 | Press the RETURN key to return to the Memory setting mode menu Screen. |


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## 3. Viewing Collecting Data No. 7 to No. 12

(7155/7165), No. 8 to 13 (7255/7272)

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Select " 1] Software DIP SW setting". |
| 3 | [Software DIP SW Setting Screen] <br> Set bit 1 of DIP switch 30-1 to 1. |
| 4 | Press the [RETURN] key to return tothe <br> Memory setting mode menu Screen. |
| 5 | $[$ [Memory setting mode menu Screen] <br> Select " 4] Data Collection". |
| 6 | $[$ Collecting data menu Screen] <br> Select the collected data you want to <br> view by pressing one of numeric keys |
| 7 |  |

(7) to (12) (7155/7165), 8) to 13 (7255/7272).
To select the key (11) or later press the (G) key.

If the key is pressed with key (1) displayed, the Collected Data Selection screen containing keys (1) to 10 appears again.
7 [Individual data view Screen]
View the selected data by scrolling the screen using the and $\boldsymbol{1}$ keys. (Note)

Press the RETURN key to return to the Memory setting mode menu Screen.

Note: On the Individual Data View screen showing the JAM count of each section (collected data 11 (7155/7165), (12) (7255/7272)) or SC count of each section (collected data (12) (7155/7165), (13) (7255/7272)), the COUNT RESET key appears. Pressing the COUNT RESET key resets the selected data count.

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## 4. Details on Display Data

(1) Collecting data No. 1 to No.3: Total/copy/print counts of each paper size

| NO | KRDS parameter (B1, B6, B8) | Destination |  |  | Maximum count | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Japan | Inch area | Metric area |  |  |
| 1 | 00 | A2 | 17x22 | A2 | 99999999 | Not counted and 0 is sent. (7255/7272) |
| 2 | 01 | A3 | $11 \times 17$ | A3 |  | All counters are 8-digit counters. |
| 3 | 02 | B4 | 8.5x14 | B4 (8K) |  |  |
| 4 | 03 | A4 | $8.5 \times 11$ | A4 |  |  |
| 5 | 04 | B5 | $5.5 \times 8.5$ | B5 (16K) |  |  |
| 6 | 05 | A5 | - | A5 |  |  |
| 7 | 06 | B6 | - | F4 |  |  |
| 8 | 07 | 8.5x14 | - | - |  |  |
| 9 | 08 | $8.5 \times 11$ | A4 | - |  |  |
| 10 | 09 | Special | Special | Special |  |  |
| 11 <br> (7255 <br> $7272)$ | OA | Postcard | - | - |  |  |

1. Each time a printed copy is ejected, the counter is incremented by 1 regardless of the paper size.
2. Any size other than paper sizes $1-9$ is counted as Special size. (SEL/LEF are counted as the same size.)

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(2) Collecting data No.4: RADF mode

| NO | KRDS parameter (FO) | Items | Maximum count | Remarks |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 00 | Number of originals fed in ADF mode | 99999999 | All counters are 8-digit |
| 2 | 01 | Number of originals fed in RADF mode |  | counters. |
| 3 | 02 | Number of originals fed in RDH mode |  |  |
| 4 | 03 | Number of originals fed in RRDH mode |  |  |
| 5 | 04 | Number of originals fed in LDF mode |  | Not counted and 0 |
| 6 | 05 | Number of originals fed in CFF mode |  |  |
| 7 | 06 | Number of 1-sided originals fed in SDF mode |  |  |
| 8 | 07 | Number of mixed originals fed in ADF mode |  | All counters are 8-digit |
| 9 | 08 | Number of mixed originals fed in RADF mode |  | counters. |
| 10 | 09 | Number of originals fed in 2in1 mode |  | Not counted and 0 is sent. |
| 11 | OA | Number of 1-sided Z-folded mode original fed |  | All counters are 8-digit |
| 12 | OB | Number of 2-sided Z-folded mode original fed |  | counters. |
| 13 | OC | Number of 2-sided originals fed in SDF mode |  | Not counted and 0 is sent. |
| 14 | OD | Undefined |  |  |
| 15 | OE |  |  |  |
| 16 | 0F |  |  |  |

1. The counter is incremented each time one original side has been scanned in each mode.
2. Counters 1 and 2 count original sides independently of counters 3-7.

4 (3) Collecting data No. 5 (7155/7165), No. 6 (7255/7272): Pixel ratio of each section *1
This allows checking the average pixel ratio of 5000 prints for latest 30 data.
4 (4) Collecting data No. 6 (7155/7165), No. 7 (7255/7272): Pixel ratio ranking list *1
This allows checking pixel ratio data, number of prints, transfer paper size, mode, and date for the top 15 job data ranked from highest rates of pixel ratio.
The pixel ratio rank list is allowed to contain only those jobs which have five or more copies, so that jobs that have made erroneous copies will be excluded from the list.
(5) Collecting data No. 7 (7155/7165), No. 8 (7255/7272): JAM data of time series

A jam code, total count, date and time of occurrence, tray type, paper size, and magnification can be displayed for the latest 100 jams.
*1 This pixel ratio is the theoretical value obtained by converting the black dot area on the image data and the area of the transfer paper, therefore it is different from the black ratio obtained by the actual printing.

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-26$ | REPLACEMENT | (7255/7272): JAM count of each section (can be reset)


|  |  | Description of JAM |  | Jam |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO | KRDS parameter (JO) | Location of jam | Code displayed when display of jam code is selected by 25DIPSW | position display on operation panel | Maximum count | Counting condition |
| 1 | 00 | By-pass paper feed | 10-1 | 6 | 999999 | All counts are 6-digit counters. |
| 2 | 01 |  | 10-2 | 6 |  |  |
| 3 | 02 | Tray 1 paper feed | 11-1 | 1 |  |  |
| 4 | 03 |  | 11-2 | 1 |  |  |
| 5 | 04 | Tray 2 paper feed | 12-1 | 2 |  |  |
| 6 | 05 |  | 12-2 | 2 |  |  |
| 7 | 06 | Tray 3 paper feed | 13-1 | 3 |  |  |
| 8 | 07 |  | 13-2 | 3 |  |  |
| 9 | 08 | Tray 4 paper feed (7255/7272 only) | 14-1 | 4 |  |  |
| 10 | 09 |  | 14-2 | 4 |  |  |
| 11 | 0A | LCT paper feed | 15-1 | 5 |  |  |
| 12 | OB |  | 15-2 | 5 |  |  |
| 13 | OC | Paper feed conveyance (common to all trays) | 17-1 | 9 |  |  |
| 14 | OD | Paper feed conveyance (tray 1) | 17-2 | 7 |  |  |
| 15 | 0E | Paper feed conveyance (tray 2/3/4)(7255/7272 only) | 17-3 | 7 |  |  |
| 16 | 0F | Paper feed conveyance (tray 2) | 17-4 | 7 |  |  |
| 17 | 10 | Paper feed conveyance (tray 3) | 17-5 | 7 |  |  |
| 18 | 11 | Paper feed conveyance (tray 4) (7255/7272 only) | 17-6 | 7 |  |  |
| 19 | 12 |  | 17-7 | 7 |  |  |
| 20 | 13 | LCT | 17-8 | 8 |  |  |
| 21 | 14 | Drum | 21-1 | 10 |  |  |
| 22 | 15 | Second paper feed conveyance | 31-1 | 9 |  |  |
| 23 | 16 |  | 31-2 | 10 |  |  |
| 24 | 17 | Fixing / Exit | 32-1 | 11 |  |  |
| 25 | 18 |  | 32-2 | 11 |  |  |
| 26 | 19 |  | 32-3 | 11 |  |  |
| 27 | 1A |  | 32-4 | 11 |  |  |
| 28 | 1B |  | 32-5 | 11 |  |  |
| 29 | 1 C | ADU | 92-1 | 12 |  |  |
| 30 | 1D |  | 92-2 | 12 |  |  |
| 31 | 1E |  | 93-1 | 13 |  |  |
| 32 | 1F |  | 94-1 | 13 |  |  |
| 33 | 20 |  | 94-2 | 13 |  |  |
| 34 | 21 | Vertical conveyance door | 19-1 | - |  |  |
| 35 | 22 | LCT | 19-2 | - |  |  |
| 36 | 23 | Front door | 51-1 | - |  |  |
| 37 | 24 | FNS | 71-1 | - |  |  |
| 38 | 25 |  | 71-2 | - |  |  |


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|  |  | Descripti | JAM | Jam |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO | KRDS parameter (JO) | Location of jam | Code displayed when display of jam code is selected by 25DIPSW | position <br> display <br> on oper- <br> ation <br> panel | Maximum count | Counting condition |
| 39 | 26 |  | 61-1 | - |  |  |
| 40 | 27 |  | 61-2 | - |  |  |
| 41 | 28 |  | 62-1 | 14 |  |  |
| 42 | 29 |  | 62-2 | 14 |  |  |
| 43 | 2A |  | 62-3 | 14 |  |  |
| 44 | 2B |  | 62-4 | 14 |  |  |
| 45 | 2 C |  | 62-5 | 14 |  |  |
| 46 | 2D |  | 62-6 | 14 |  |  |
| 47 | 2E | ADF | 62-7 | 14 |  |  |
| 48 | 2 F |  | 62-8 | 14 |  |  |
| 49 | 30 |  | 62-9 | 14 |  |  |
| 50 | 31 |  | 62-10 | 14 |  |  |
| 51 | 32 |  | 63-1 | 15 |  |  |
| 52 | 33 |  | 63-2 | 15 |  |  |
| 53 | 34 |  | 63-3 | 15 |  |  |
| 54 | 35 |  | 63-4 | 15 |  |  |
| 55 | 36 |  | 63-5 | 15 |  |  |
| 56 | 37 |  | 72-16 | 16 |  |  |
| 57 | 38 |  | 72-17 | 16 |  |  |
| 58 | 39 |  | 72-18 | 16 |  |  |
| 59 | 3A |  | 72-19 | 16 |  |  |
| 60 | 3B |  | 72-20 | 16 |  |  |
| 61 | 3C |  | 72-21 | 16 |  |  |
| 62 | 3D |  | 72-22 | 17 | 999999 | All counts are |
| 63 | 3E | FNS | 72-23 | 17 |  | 6-digit counters. |
| 64 | 3 F |  | 72-24 | 18 |  |  |
| 65 | 40 |  | 72-25 | 18 |  |  |
| 66 | 41 |  | 72-26 | 18 |  |  |
| 67 | 42 |  | 72-27 | 16 |  |  |
| 68 | 43 |  | 72-28 | 16 |  |  |
| 69 | 44 |  | 72-29 | 16 |  |  |
| 70 | 45 |  | 72-30 | 16 |  |  |
| 71 | 46 |  | 72-32 | 19 |  |  |
| 72 | 47 | - | 72-33 | 19 |  |  |
| 73 | 48 |  | 72-34 | 19 |  |  |
| 74 | 49 | PI | 72-35 | 17 |  |  |
| (2) 75 | 4A |  | 72-38 | 20 |  |  |
| 76 | 4B |  | 72-39 | 20 |  |  |
| 77 | 4C | PZ | 72-40 | 20 |  |  |
| 78 | 4D |  | 72-41 | 20 |  |  |
| L9 | 4E |  | 72-42 | 20 |  |  |
| 80 | 4F | PK | 72-43 | 16 |  |  |
| (2) 81 | 50 |  | 72-44 | 20 |  |  |
| 2 82 | 51 | PZ | 72-45 | 20 |  |  |
| 83 | 52 |  | 72-46 | 20 |  |  |
| L 84 | 53 |  | 72-47 | 20 |  |  |
| 85 | 54 | FNS | 72-48 | 18 |  |  |


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1. When a jam occurs, the associated counter is incremented by 1 (Static jams are not counted.)

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4. (7) Collecting Data No. 7 (7155/7165), No. 10 (7255/7272):Count of each copy mode

| NO | KRDS parameter (F1) | Item | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 00 | 1-1 mode | 99999999 | All counters are 8-digit counters. |
| 2 | 01 | 1-2 mode |  |  |
| 3 | 02 | 2-1 mode |  |  |
| 4 | 03 | 2-2 mode |  |  |
| 5 | 04 | ADF1-1 mode |  |  |
| 6 | 05 | ADF1-2 mode |  |  |
| 7 | 06 | Mixed original mode |  |  |
| 8 | 07 | Index original |  |  |
| 9 | 08 | Z-folded original mode |  |  |
| 10 | 09 | LEF/portrait, SEF/landscape normal set |  |  |
| 11 | 0A | LEF/landscape, SEF/portrait normal set |  |  |
| 12 | OB | LEF/portrait, SEF/landscape reverse set |  |  |
| 13 | OC | LEF/landscape, SEF/portrait reverse set |  |  |
| 14 | 0D | Auto (text/photo) |  |  |
| 15 | 0E | Text |  |  |
| 16 | OF | Photo |  |  |
| 17 | 10 | Pencil |  |  |
| 18 | 11 | Non STD size |  |  |
| 19 | 12 | 1 staple (upper-left) |  |  |
| 20 | 13 | 1 staple (upper-right) |  |  |
| 21 | 14 | 2 staples (left side) |  |  |
| 22 | 15 | 2 staples (top side) |  |  |
| 23 | 16 | Stapled at left (7155/7165), stapled at both sides (7255/7272) |  |  |
| 24 | 17 | Stapled at right |  | Not available (7255/7272) <br> All counters are 8-digit counters. |
| 25 | 18 | Stapled on top |  |  |
| 26 | 19 | Three-holding |  |  |
| 27 | 1A | Stitch and fold |  |  |
| 28 | 1B | Folding |  |  |

Not counted at group stapling (7255/7272)
All counters are 8-digit counters.

Not available (7255/7272)
All counters are 8-digit counters.

Not available (7255/7272)
All counters are 8-digit counters.

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| NO | $\begin{gathered} \text { KRDS } \\ \text { parameter } \\ (\mathrm{F} 1) \end{gathered}$ | Item | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: |
| 46 | 2D | Preset magnification R3 | 99999999 | All counters are 8-digit counters. |
| 47 | 2E | Preset magnification R2 |  |  |
| 48 | 2F | Preset magnification R1 |  |  |
| 49 | 30 | User lens mode 1 |  |  |
| 50 | 31 | User lens mode 2 |  |  |
| 51 | 32 | User lens mode 3 |  |  |
| 52 | 33 | ZOOM |  |  |
| 53 | 34 | Vertical/Horizontal zoom |  |  |
| 54 | 35 | Maximum ZOOM |  |  |
| 55 | 36 | Minimum ZOOM |  |  |
| 56 | 37 | APS |  |  |
| 57 | 38 | AMS |  |  |
| 58 | 39 | Auto density (EE) |  |  |
| 59 | 3A | User density level 1 |  |  |
| 60 | 3B | User density level 2 |  |  |
| 61 | 3 C | Interrupted copy |  |  |
| 62 | 3D | Automatic image rotation cancellation |  |  |
| 63 | 3E | Inter sheet |  |  |
| 64 | 3F | Chapter control |  |  |
| 65 | 40 | Combination |  |  |
| 66 | 41 | Booklet copy |  |  |
| 67 | 42 | OHP interleave (copy) |  |  |
| 68 | 43 | OHP interleave (blank) |  |  |
| 69 | 44 | Image insert |  |  |
| 70 | 45 | Dual Page |  |  |
| 71 | 46 | Program job |  |  |
| 72 | 47 | Non-image area erase |  |  |
| 73 | 48 | Reverse image |  |  |
| 74 | 49 | Auto repeat |  |  |
| 75 | 4A | Manual repeat |  |  |
| 76 | 4B | STD size repeat |  |  |
| 77 | 4C | Frame erasure |  |  |
| 78 | 4D | Fold erasure |  |  |
| 79 | 4E | Auto layout |  |  |
| 80 | 4F | Full-image Area |  |  |
| 81 | 50 | Image Shift |  |  |
| 82 | 51 | Reduction shift |  |  |
| 83 | 52 | Overlay |  |  |
| 84 | 53 | Water mark |  |  |
| 85 | 54 | Stamp |  |  |
| 86 | 55 | Date / Time |  |  |
| 87 | 56 | Page |  |  |
| 88 | 57 | Numbering |  |  |
| 89 | 58 | Set quantity 1 |  |  |
| 90 | 59 | Set quantity 2-5 |  |  |
| 91 | 5A | Set quantity 6-10 |  |  |


| NO | KRDS parameter (F1) | Item | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: |
| 92 | 5B | Set quantity 11 or more | 99999999 | All counters are 8-digit counters. |
| 93 | 5C | Energized time of power condition 1 |  | Total period of time during which image control board is energized. Total period of time during the operation of CPU. |
| 94 | 5D | Energized time of power condition 2 |  | Total period of time during which remote power supply 2 is on. <br> 1 is counted per minutes. |
| 95 | 5E | Unused |  |  |
| 96 | 5F | Energized time of power condition 4 |  | Total period of time during which remote power supply 3 is on. <br> 1 is counted per minutes. |
| 97 | 60 | Time during low power mode |  | Total period of time during which low power mode is selected. The count is incremented by 1 per minute. |
| 98 | 61 | Time during WUP |  | Total period of time during which fixing unit heater is ON when the fixing is UNREADY. The count is incremented by 1 per second. Data is output per minute. |
| 99 | 62 | Time during front door open |  | Total period of time during which front door is open. The count is incremented by 1 per second. Data is output per minute. |
| 100 | 63 | Ope. time in 1 side straight exit |  | Total time from start to end of printing. The count is |
| 101 | 64 | Ope. time in 1 side reverse exit |  | incremented by 1 per second. Data is output per |
| 102 | 65 | Ope. time in 2 side print |  | minute. (Halt time caused by JAM stop, etc. is not included.) |
| 103 | 66 | Operation time in ADF mode |  | Total operation time of ADF. The count is incremented by 1 per second. Data is output per minute |
| 104 | 67 | Morning Correction count |  | The count is incremented by 1 each time correction is made before starting work in the morning. |
| 105 | 68 | Time during APS sensor on |  | Total period of time during which APS sensor is ON. The count is incremented by 1 per second. Data is output per minute. |
| 106 | 69 | N of main tray used jobs |  | Number of jobs |
| 107 | 6A | N of sub tray used jobs |  |  |
| 108 | 6B | N of stapling folding used jobs |  |  |
| 109 | 6C | $N$ of folding jobs |  |  |
| 110 | 6D | N of ADF NF occurred |  |  |


| NO | KRDS parameter (F1) | Item | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: |
| 111 | 6 E | N of ADF special error 1 occurred |  | Original size detection error occurrence count |
| 112 | 6 F | N of ADF special error 2 occurred |  | Next original information error occurrence count |
| 113 | 70 | N of ADF special error 3 occurred |  | Mixed loading prohibited original size error occurrence count |
| 114 | 71 | N of Scanner scanned |  | The count is incremented by 1 each time Platen Mode Copy button is pressed. |
| 115 | 72 | N of electrode cleaned |  |  |
| 116 | 73 | N of memory overflow |  | When memory is insufficient for No. $124+125+126+$ HDD reading (7255/7272) |
| 117 | 74 | N of fixing alarm occurred |  |  |
| 118 | 75 | N of no toner stop occurred |  |  |
| 119 | 76 | N of AGC retry |  |  |
| 120 | 77 | N of sub scan beam correct error |  |  |
| 121 | 78 | N of mis-centering correct error |  |  |
| 122 | 79 | N of ADF distortion adjust error |  |  |
| 123 | 7A | N of ADF distortion data error |  |  |
| 124 | 7B | Compression memory overflow |  | When memory is insufficient for scanner compression/printer compression (7255/7272) |
| 125 | 7 C | Page memory overflow (scan) | 99999999 | When memory is insufficient for printer data receiving (7255/7272) |
| 126 | 7D | Page memory overflow (print) |  | When memory is insufficient for page expansion (7255/7272) |
| 127 | 7E | FNS alarm (tray/trimming) |  |  |
| 128 | 7F | FNS alarm (staple) |  |  |
| 129 | 80 | Scanner count |  | Not available (7255/7272) |
| 130 | 81 | N of ADF special error 4 occurred |  | Ready-time out error |
| 131 | 82 | Store for HDD (Sync. with Copying) |  |  |
| 132 | 83 | Store for HDD (SRV mode scan-> HDD) |  |  |
| 133 | 84 | Store for PC (SRV mode scan-> HDD) |  |  |
| 134 | 85 | Store for PC (SRV mode HDD-> PC) |  |  |
| 135 | 86 | Recall from HDD (SRV mode HDD) |  |  |
| 136 | 87 | Recall from PC (SRV mode PC) |  |  |
| 137 | 88 | Image edit count by SRV |  |  |
| 138 | 89 | Wide paper count (A3W or 11x17W) |  |  |
| 139 | 8A | Wide paper count (A4W or 8.5x11W) |  |  |
| 140 | 8B | Wide paper count (A4RW or 8.5x11RW) |  |  |
| 141 | 8C | Wide paper count (A5W or $5.5 \times 8.5 \mathrm{~W}$ ) |  |  |
| 142 | 8D | Wide paper count (Others) |  |  |
| 143 | 8E | Punch |  |  |
| 144 | 8F | Z-fold |  |  |
| 145 | 90 | Unused |  |  |
| 146 | 91 | Mixplex (1-sided) |  |  |
| 147 | 92 | Mixplex (2-sided) |  |  |


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(8) Collecting data No. 10 (7155/7165), No. 11 (7255/7272): SC count / Collecting data No. 12 (7155/7165), No. 13 (7255/7272): SC count of each section (can be reset)

| NO | $\begin{gathered} \text { KRDS } \\ \text { parameter } \\ (\mathrm{E} 0) \end{gathered}$ | Trouble code |  | Description | Maximum count | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 00 | 13 | 1 | Paper feed MT EM |  |  |
| 2 | 01 | 13 | 2 | LCT conveyance MT EM |  |  |
| 3 | 02 | 18 | 10 | Tray 1 up MT EM |  |  |
| 4 | 03 | 18 | 11 | Tray 1 up error |  |  |
| 5 | 04 | 18 | 20 | Tray 2 up MT EM error |  |  |
| 6 | 05 | 18 | 21 | Tray 2 up error |  |  |
| 7 | 06 | 18 | 30 | Tray 3 up MT EM error |  |  |
| 8 | 07 | 18 | 31 | Tray 3 up error |  |  |
| 9 | 08 | 18 | 40 | Tray 4 up MT EM error (7255/7272 only) |  |  |
| 10 | 09 | 18 | 41 | Tray 4 up error (7255/7272 only) |  |  |
| 11 | OA | 18 | 50 | LCT up/down MT EM |  |  |
| 12 | 0B | 18 | 51 | LCT up/down error |  |  |
| 13 | 0 C | 18 | 60 | By-pass tray up error |  |  |
| 14 | 0D | 21 | 1 | Charging corona unit cleaning MT error 1 |  |  |
| 15 | OE | 21 | 2 | Charging corona unit cleaning MT error 2 |  |  |
| 16 | 0F | 21 | 3 | Charging corona unit cleaning MT error 3 |  |  |
| 17 | 10 | 21 | 4 | Charging corona unit cleaning MT error 4 |  |  |
| 18 | 11 | 21 | 5 | Transfer/separation corona unit cleaning MT error 1 |  |  |
| 19 | 12 | 21 | 6 | Transfer/separation corona unit cleaning MT error 2 |  |  |
| 20 | 13 | 21 | 7 | Transfer/separation corona unit cleaning MT error 3 |  |  |
| 21 | 14 | 21 | 8 | Transfer/separation corona unit cleaning MT error 4 | 9999 | All counters are 4 digit counters. |


|  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 22 | 15 | 22 | 1 | Developing suction fan lock | digit counters. |


| NO | KRDS parameter (E0) | Trouble code |  | Description | Maximum count | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 42 | 29 | 32 | 1 | Second paper feed MT EM |  |  |
| 43 | 2 A | 33 | 1 | Fixing upper roller high temperature error detection |  |  |
| 44 | 2B | 34 | 2 | Fixing upper roller high temperature error detection |  |  |
| 45 | 2 C | 34 | 1 | Fixing upper roller low temperature error detection 1 |  |  |
| 46 | 2D | 35 | 2 | Fixing upper roller low temperature error detection 2 |  |  |
| 47 | 2E | 35 | 3 | Fixing upper roller low temperature error detection 3 |  |  |
| 48 | 2 F | 35 | 1 | Fixing upper roller sensor error detection |  |  |
| 49 | 30 | 36 | 2 | Fixing lower roller sensor error detection |  |  |
| 50 | 31 | 36 | 1 | Scanner HP return error |  |  |
| 51 | 32 | 41 | 2 | Polygon MT error |  |  |
| 52 | 33 | 41 | 1 | Scanner cooling fan lock |  |  |
| 53 | 34 | 42 | 2 | Write section cooling fan lock |  |  |
| 54 | 35 | 42 | 1 | APC error |  |  |
| 55 | 36 | 46 | 2 | Scanner FIFO error |  |  |
| 56 | 37 | 46 | 3 | Printer FIFO error |  |  |
| 57 | 38 | 46 | 5 | Compressed input/output FIFO error |  |  |
| 58 | 39 | 46 | 6 | Expansion error |  |  |
| 59 | 3A | 46 | 8 | Index sensor error |  |  |
| 60 | 3B | 46 | 10 | No margin of scanner control | 9999 | All counters are 4- |
| 61 | 3C | 46 | 11 | No margin of printer control |  |  |
| 62 | 3D | 46 | 12 | SVV length error |  |  |
| 63 | 3E | 46 | 13 | Scanner time-out |  |  |
| 64 | 3F | 46 | 14 | Printer time-out |  |  |
| 65 | 40 | 46 | 15 | Expansion device access error |  |  |
| 66 | 41 | 46 | 16 | Compression device access error |  |  |
| 67 | 42 | 46 | 17 | Filter factory error |  |  |
| 68 | 43 | 46 | 19 | Memory device access error on data flow |  |  |
| 69 | 44 | 46 | 21 | Data flow memory mode time-out |  |  |
| 70 | 45 | 46 | 23 | SVV off error |  |  |
| 71 | 46 | 46 | 24 | Black/white collection error |  |  |
| 72 | 47 | 46 | 25 | AOC/AOG Level adjustment error |  |  |
| 73 | 48 | 46 | 26 | Invalid correction data by resolution |  |  |
| 74 | 49 | 46 | 27 | Density conversion ( $\gamma$ curve generation error) |  |  |
| 75 | 4A | 46 | 29 | Calibration start error |  |  |
| 76 | 4B | 46 | 30 | Calibration abend |  |  |
| 77 | 4C | 46 | 31 | APC initial sampling error |  |  |
| 78 | 4D | 46 | 32 | MPC error |  |  |
| 79 | 4E | 46 | 33 | Sub-scan beam correction error |  |  |
| 80 | 4F | 46 | 34 | Unfinished Calibration |  |  |
| 81 | 50 | 46 | 35 | Continuous copy page area error |  |  |


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| NO | $\underset{\substack{\text { KRDS } \\ \text { parameter } \\ \text { (E0) }}}{\text { Kin }}$ | Trouble code |  | Description | Maximum count | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 82 | 51 | 46 | 40 | HDD initialization trouble |  |  |
| 83 | 52 | 46 | 41 | HDD JOB save error |  |  |
| 84 | 53 | 46 | 42 | HDD periodic cleaning error |  |  |
| 85 | 54 | 46 | 43 | HDD access failure |  |  |
| 86 | 55 | 46 | 50 | Tandem communication error |  |  |
| 87 | 56 | 46 | 51 | Tandem image communication error |  |  |
| 88 | 57 | 46 | 64 | PWMg curve generation failure |  |  |
| 89 | 58 | 46 | 80 | Insufficient/broken message queue |  |  |
| 90 | 59 | 46 | 81 | Invalid message or method parameter |  |  |
| 91 | 5A | 46 | 82 | Invalid task |  |  |
| 92 | 5B | 46 | 83 | Invalid event |  |  |
| 93 | 5 C | 46 | 90 | Memory access error |  |  |
| 94 | 5D | 46 | 91 | Header access error |  |  |
| 95 | 5E | 46 | 99 | DIMM initialization error |  |  |
| 96 | 5F | 49 | 1 | IP board failure |  |  |
| 97 | 60 | 49 | 2 | IP communication error |  |  |
| 98 | 61 | 49 | 3 | Direct Memory Access error |  |  |
| 99 | 62 | 49 | 4 | IP HDD failure |  |  |
| 100 | 63 | 49 | 5 | IP fan lock |  |  |
| 101 | 64 | 50 | 1 | Main body drive serial input error 1 |  |  |
| 102 | 65 | 50 | 2 | Main body drive serial input error 2 |  |  |
| 103 | 66 | 50 | 3 | Main body drive serial input error 3 |  |  |
| 104 | 67 | 50 | 4 | Main body drive serial input error 4 | 9999 | digit counters. |
| 105 | 68 | 50 | 5 | Drive board communication reception error detection |  |  |
| 106 | 69 | 50 | 10 | Image control board communication connection error |  |  |
| 107 | 6A | 50 | 11 | Detection error of image control board communication serial reception error |  |  |
| 108 | 6B | 52 | 1 | Power supply cooling fan lock |  |  |
| 109 | 6 C | 52 | 2 | Main body cooling fan/1 lock |  |  |
| 110 | 6D | 53 | 1 | Fixing MT EM |  |  |
| 111 | 6 E | 56 | 2 | Operation section communication error |  |  |
| 112 | 6F | 62 | 1 | ADF fan lock |  |  |
| 113 | 70 | 70 | 1 | FNS communication error |  |  |
| 114 | 71 | 70 | 2 | FNS communication start acknowledgement error detection error |  |  |
| 115 | 72 | 77 | 1 | Shift driving error |  |  |
| 116 | 73 | 77 | 2 | Tray up/down driving error |  |  |
| 117 | 74 | 77 | 3 | Alignment plate/U drive error |  |  |
| 118 | 75 | 77 | 4 | Exit roller drive error |  |  |
| 119 | 76 | 77 | 5 | Exit driving error |  |  |
| 120 | 77 | 77 | 6 | Stapler movement driving error |  |  |
| 121 | 78 | 77 | 7 | Clincher rotation driving error |  |  |
| 122 | 79 | 77 | 8 | Stapler rotation driving error |  |  |
| 123 | 7A | 77 | 11 | Stapler/F error |  |  |

44 \begin{tabular}{|c|c|c|c|l|c|l|}

\hline NO \& | KRDS |
| :---: |
| parameter |
| (E0) | \& | Trouble |
| :---: |
| code | \& \multicolumn{1}{|c|}{ Description } \& | Maximum |
| :---: |
| count | \& \multicolumn{1}{c|}{ Remarks } <br>


\hline 167 \& A6 \& 77 \& 58 \& | PZ punch 2/3 (•4) hole switching motor |
| :--- |
| driving error | \& \multirow{2}{*}{9999} \& | All counters are 4- |
| :--- |
| digit counters. | <br>

\hline 168 \& A7 \& 22 \& 3 \& Developer cooling fan lock (7255/7272 only) \& <br>
\hline 169 \& A8 \& 23 \& 4 \& PCL connection error (7255/7272 only) \& \& <br>
\hline
\end{tabular}

Note: When DIP switch is set to 3-1-1, SC34, 35, are not counted
(9) Collecting data No. 5 (7255/7272)

| NO | KRDS parameter (F4) | Description | Maximum <br> count | Remarks |
| :---: | :---: | :--- | :---: | :---: |
| 1 | 01 | Large size | 99999999 | All counters are <br> 8 -digit counters. |

1. Counted when the uploading is completed.
2. The threshold for large size is set by 25 -mode DIPSW26-1.

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## [8] Copy Count by Parts to be Replaced (Fixed Parts)

This function allows you to display or reset the copy count for a fixed part or data.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select " 5 Parts counter." |
| 3 | [Copy count of parts menu Screen] <br> Select " (1) Count of special parts." |
| 4 | [Copy count of special menu Screen] Data numbers (No.), part names (Name), and count values are displayed in a list format. <br> Using $\boldsymbol{\square}$ and keys, select a part name. <br> To scroll the screen, use and keys. |
| 5 | Press the COUNT RESET key to reset the count value of the part highlighted. |
| 6 | Press the RETURN key to return to the Memory setting mode menu Screen. |

Copy count parts counter

|  | NO | KRDS parameter | Part name | Part No. | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | 00 | Web unit *1 | 56AA-543 | 99999999 | Count 1 per ejected paper for single sided, 2 for double sided |
|  | 2 | 01 | Developer *1 | 56AA3060 |  | 25DIPSW8-6 |
|  | 3 | 02 | OPC drum *1 | 56AA-220 |  | $=0$ : Count 1 per ejected paper for single sided, 2 |
|  | 4 | 03 | Cleaning blade | 56AA2010 |  | for double sided |
| 4 | 5 | 04 | Toner reclaim roller unit assembly | 56AA-213 $(7155 / 7165)$ $56 Q A-213$ (7255/7272) |  | $=1$ : For A3, 11x17, 8k, count 2 per ejected paper for single sided, 4 for double sided |
|  | 6 | 05 | Charging blade | 56AA2503 |  |  |
|  | 7 | 06 | Charger cleaning block for upper assembly | 56AA-253 |  |  |
|  | 8 | 07 | Charger cleaning block for lower assembly | 56AA-254 |  |  |
|  | 9 | 08 | Drum separation claw | 56AA2070 |  |  |
|  | 10 | 09 | Discharging wire | 56AA2609 |  |  |

*1. Caution: You must reset the counter when replace these parts, otherwise image failure may occur.

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| NO | $\begin{aligned} & \hline \text { KRDS } \\ & \text { para- } \\ & \text { meter } \end{aligned}$ | Part name | Part No. | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 0A | Trans./sep. cleaning assembly | 56AA-264 |  | 25DIPSW8-6 <br> $=0$ : Count 1 per ejected paper for single sided, 2 |
| 12 | OB | Fixing upper roller | 56AA5305 |  | for double sided |
| 13 | OC | Fixing lower roller | 55AA5306 (7155/7165) 56AA5306 (7255/7272) |  | $=1$ : For A3, 11x17, 8k, count 2 per ejected paper for single sided, 4 for double sided |
| 14 | OD | Fixing upper claw | 56AA5427 |  |  |
| 15 | 0E | Fixing lower claw | 25BA5333 <br> (7155/7165) <br> 56QA5320 <br> (7255/7272) |  |  |
| 16 | 0F | Heat insulate sleeve (upper) | 45405339 |  |  |
| 17 | 10 | Upper roller bearing | 45407504 |  |  |
| 18 | 11 | Cleaning roller (7155/7165) | 56AA5308 |  |  |
| 19 | 12 | Toner control board unit | 56AA-910 |  |  |
| 20 | 13 | Trans./sep. corona unit | $\begin{aligned} & \hline 56 \mathrm{AA}-260 \\ & \text { (7155/7165) } \\ & \text { 56QA-260 } \\ & (7255 / 7272) \end{aligned}$ | 99999999 |  |
| 21 | 14 | Separation cleaning assembly | 56AA-267 |  |  |
| 22 | 15 | Charging wire | 56AA2509 |  |  |
| 23 | 16 | Upper roller error detection sensor | 56AA8804 |  |  |
| 24 | 17 | $\begin{aligned} & \text { Ozone filter (7155/7165) } \\ & \text { Ozone filterM (7255/7272) } \end{aligned}$ | $\begin{array}{c\|} \hline \text { 56FA7301 } \\ \text { 56QA1059 } \end{array}$ |  |  |
| 25 | 18 | Charging corona unit | 56AA-250 $(7155 / 7165)$ $56 \mathrm{QA}-250$ $(7255 / 7272)$ |  |  |
| 26 | 19 | PCL assembly (7155/7165) | 56AA-256 |  |  |
| 27 | 1A | Developer | $56 A A-300$ <br> $(7155 / 7156)$ <br> $56 \mathrm{Q}-300$ <br> $(7255 / 7272)$ |  |  |
| 28 | 1B | TSL cover assembly | 56AA-387 |  |  |


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| $4 \mathrm{NO}^{\text {N }}$ | $\left\|\begin{array}{l} \text { KRDS } \\ \text { para- } \\ \text { meter } \end{array}\right\|$ | Part name | Part No. | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 29 | 1C | Tray 1 feed rubber | $25 A A 4001$ <br> (7155/7165) <br> $56 A A-658$ <br> (7255/7272) <br> 25 | 99999999 | 1 is counted each time the paper from tray 1 is ejected. |
| 30 | 1D | Tray 1 feed conv/rev rubber | 25SA4096 |  |  |
| 31 | 1E | Tray 1 feed clutch | 56AA8201 |  |  |
| 32 | 1 F | Tray 1 convey clutch | 56AA8201 |  |  |
| 33 | 20 | Tray 1 feed count | $56 A A-400$ <br> $(7155 / 7165)$ <br> $56 Q A-400$ <br> $(7255 / 7272)$ |  |  |
| 34 | 21 | Tray 2 feed rubber | $25 A A 4001$ <br> $(7155 / 7165)$ <br> $56 A A-458$ <br> $(7255 / 7272)$ <br> 25 |  | 1 is counted each time the paper from tray 2 is ejected. |
| 35 | 22 | Tray 2 feed conv/rev rubber | 25SA4096 |  |  |
| 36 | 23 | Tray 2 feed clutch | 56AA8201 |  |  |
| 37 | 24 | Tray 2 convey clutch | 56AA8201 |  |  |
| 38 | 25 | Tray 2 feed count | 56AA-400 <br> $(7155 / 7165)$ <br> $56 Q A-400$ <br> $(7255 / 7272)$ |  |  |
| 39 | 26 | Tray 3 feed rubber | 25AA4001 <br> $(7155 / 7165)$ <br> $56 A A-458$ <br> $(7255 / 7272)$ |  | 1 is counted each time the paper from tray 3 is ejected. |
| 40 | 27 | Tray 3 feed conv/rev rubber | 25SA4096 |  |  |
| 41 | 28 | Tray 3 feed clutch | 56AA8201 |  |  |
| 42 | 29 | Tray 3 convey clutch | 56AA8201 |  |  |
| 43 | 2A | Tray 3 feed count | $56 A A-400$ <br> $(7155 / 7165)$ <br> $56 Q A-400$ <br> $(7255 / 7272)$ |  |  |


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| $4 \mathrm{NO}^{4}$ | $\begin{aligned} & \text { KRDS } \\ & \text { para- } \\ & \text { meter } \end{aligned}$ | Part name | Part No. | Maximum count | Counting condition |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 77 | 4C | PI sheet feed clutch/U | 13QN8201 |  | Counted each time are paper is fed into PI/U |
| 78 | 4D | PI feed roller unit/A | 50BA-574 |  |  |
| 79 | 4E | Pl feed roller unit/B | 50BA-575 |  |  |
| 80 | 4F | Pl reverse robber unit | 13QN-443 |  |  |
| 81 | 50 | Pl torque limiter | 13QN4073 |  |  |
| 82 | 51 | PI sheet feed clutch/L | 13QN8201 |  | Counted each time one paper is fed into PI/L |
| 83 | 52 | Pl feed roller unit/A | 50BA-574 |  |  |
| 84 | 53 | Pl feed roller unit/B | 50BA-575 |  |  |
| 85 | 54 | Pl reverse robber unit | 13QN-443 |  |  |
| 86 | 55 | PI torque limiter | 13QN4073 |  |  |
| 87 | 56 | Trimmer knife | 13LH1026 |  | 1 is counted each time knife movement is made |
| 88 | 57 | Punched holes (2 holes) | 13NK5001 |  | Number of ejected papers with the punch mode selected |
| 89 | 58 | Punched holes (3 holes) | 13NL5001 |  |  |
| 90 | 59 | Punched holes (4 holes) | 13NM5001 |  |  |
| 91 | 5A | - | - |  | Not used |
| 92 | 5B | ADF feed roller | 13QA4127 |  | Number of originals passes in all modes |
| 93 | 5C | ADF Separation roller | 13QA4104 |  |  |
| 94 | 5D | ADF double-feed prevention robber | 13QA4045 |  |  |
| 95 | 5E | ADF double-feed prevention roller | 13QA4001 | 99999999 |  |
| 96 | 5 F | ADF paper exit solenoid | 12QV8251 <br> (7155/7165) <br> 13QA-407 <br> (7255/7272) |  | 1 is counted each time one original passes in the double side or the mixed mode |
| 97 | 60 | ADF feed clutch | 56AA8201 |  | single side: Number of originals passes in every single side mode count double side: Number of originals passes in every double side mode $\times 3$ counts |
| 98 | 61 | ADF reverse solenoid |  <br> 12QV8251 <br> (7155/7165) <br> 13QA-407 <br> (7255/7272) |  | 1 is counted each time one original passes in the double side or the mixed mode |
| 99 | 62 | ADF pressure roller release solenoid | $\begin{aligned} & 25 \mathrm{SA} 8265 \\ & (7155 / 7165) \\ & \text { 13QA-406 } \\ & \text { (7255/7272) } \\ & \hline \end{aligned}$ |  | 2 is counted each time one original passes in the double side or the mixed mode |
| 100 | 63 | Exposure ON time | 55TA8301 <br> (7155/7165) <br> 56AA8301 <br> (7255/7272) |  | Unit |
| 101 | 64 | Sub power switch | 55GA8602 |  | 1 is counted each time sub power is switched off. |
| 102 | 65 | Door switch | 40AA8501 |  | 1 is counted each time front door is opened. |


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| 124 | 7 B |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 125 | 7 C |  |  |  |
| 126 | 7 D |  |  |  |
| 127 | 7 E |  |  |  |
| 128 | 7 F |  |  |  |


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## [9] Copy Count by Parts to be Replaced (Optional Parts)

This function allows you to make the following settings for an optional part or data:

1. Copy count resetting
2. Limit value setting
3. Part number setting
4. Part name setting

The above settings can be made for 30 data numbers, No. 1 to No. 30.
The copy count is incremented by 1 for each side irrespective of the paper size.

## 1. Resetting the Copy Count by Parts to be Replaced (Optional Parts)

This function allows you to reset the copy count by parts to be replaced (optional parts).

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Select the " 5 Parts counter". |
| 3 | [Copy count of part menu Screen] <br> Select the " 2) Count of each parts" |
| 4 | [Copy count of each part Screen] Data numbers (No.), part names (Name), part numbers (P/N), and count/ limit values are displayed in a list format. <br> Using $\qquad$ and $\square$ keys, select a part name. <br> To scroll the screen, use $\square$ and $\square$ keys. |
| 5 | Press the COUNT RESET key to reset the count value of the part highlighted. |
| 6 | Press the RETURN key to return to the <br> Memory setting mode menu Screen. |

Reference: If the copy count exceeds the limit, the * mark appears to the left of the limit value.
2. Changing the data on the Copy Count by Parts to be Replaced (Optional Parts)
This function allows you to change the limit value, part number, or part name for the desired optional copy count by parts to be replaced (optional parts).

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] Select the " 5 Parts counter". |
| 3 | [Copy count of part menu Screen] <br> Select the " (2) Count of each parts". |
| 4 | [Copy count of each part Screen] Data numbers (No.), part names (Name), part numbers (P/N), and count/ limit values are displayed in a list format. <br> Using $\square$ and $\square$ keys, select a data number. <br> To scroll the screen, use $\square$ and keys. |
| 5 | Press the Part Name Set, P/N Set, or Limit Set key. |
| 6 | [Data change screen by parts to be replaced] <br> Press the Parts name , P/N set or <br> Limit set key corresponding to the data you want to change. |
| 7 | Enter new data using alphabetic and numeric keys. |
| 8 | Perform steps 6 and 7 repeatedly to change other data. |
| 9 | Press the $O K$ key to allow the new data to take effect. <br> To cancel the new data, press the <br> CANCEL key. <br> Pressing either key will display the Copy count by parts to be replaced (optional parts) screen again. |
| 10 | [Data change screen by parts to be replaced] <br> Press the RETURN key to return to the Memory setting mode menu Screen. |

Reference1: The characters entered in the data field of each data item will be shifted to the left one after another.

Reference2: When the number of entered characters exceeds 10 , the leftmost character will disappear.

Reference3: Relationships between data numbers and KRDS parameters are shown in the following table:

| No. | Parts | P/N | Count | Limit |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Z4:00 | Z3:00 | G0:00 | H0:00 |
| 2 | Z4:01 | Z3:01 | G0:01 | H0:01 |
| 3 | Z4:02 | Z3:02 | G0:02 | H0:02 |
| 4 | Z4:03 | Z3:03 | G0:03 | H0:03 |
| 5 | Z4:04 | Z3:04 | G0:04 | H0:04 |
| 6 | Z4:05 | Z3:05 | G0:05 | H0:05 |
| 7 | Z4:06 | Z3:06 | G0:06 | H0:06 |
| 8 | Z4:07 | Z3:07 | G0:07 | H0:07 |
| 9 | Z4:08 | Z3:08 | G0:08 | H0:08 |
| 10 | Z4:09 | Z3:09 | G0:09 | H0:09 |
| 11 | Z4:0A | Z3:0A | G0:0A | H0:0A |
| 12 | Z4:0B | Z3:0B | G0:0B | H0:0B |
| 13 | Z4:0C | Z3:0C | G0:0C | H0:0C |
| 14 | Z4:0D | Z3:0D | G0:OD | H0:OD |
| 15 | Z4:0E | Z3:0E | G0:0E | H0:0E |
| 16 | Z4:0F | Z3:0F | G0:0F | H0:0F |
| 17 | Z4:10 | Z3:10 | G0:10 | H0:10 |
| 18 | Z4:11 | Z3:11 | G0:11 | H0:11 |
| 19 | Z4:12 | Z3:12 | G0:12 | H0:12 |
| 20 | Z4:13 | Z3:13 | G0:13 | H0:13 |
| 21 | Z4:14 | Z3:14 | G0:14 | H0:14 |
| 22 | Z4:15 | Z3:15 | G0:15 | H0:15 |
| 23 | Z4:16 | Z3:16 | G0:16 | H0:16 |
| 24 | Z4:17 | Z3:17 | G0:17 | H0:17 |
| 25 | Z4:18 | Z3:18 | G0:18 | H0:18 |
| 26 | Z4:19 | Z3:19 | G0:19 | H0:19 |
| 27 | Z4:1A | Z3:1A | G0:1A | H0:1A |
| 28 | Z4:1B | Z3:1B | G0:1B | H0:1B |
| 29 | Z4:1C | Z3:1C | G0:1C | H0:1C |
| 30 | Z4:1D | Z3:1D | G0:1D | H0:1D |

## [10] Setting Passwords

This function allows you to set the following passwords:

1. Key operator password (4 digits)

This password is required to enter the key operator mode.
2. EKC master key code (8 digits)

This code is necessary when entering various EKC setting modes.
3. Weekly timer password (4 digits)

This password is necessary when entering various weekly timer setting modes.

Note: This password cannot be set if "Weekly timer ON" is not specified for the weekly timer in the key operator mode.
4. HDD management password (4 digits)

This password is necessary when entering the HDD management modes in the key operator mode while connecting the optional hard disk.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Select the " 6 6 |
| 3 | [Password setting". |
| Select "key operator password (4 dig- <br> its)", "EKC master key code (8 digits)", <br> "Weekly timer password (4 digits)" or <br> "HDD management password (4 dig- <br> its)". |  |
| 4 | Enter a new password using numeric <br> keys. |
| 5 | Perform step 3 and 4 repeatedly to set <br> other passwords. |
| 6 | Press the OK <br> words to take effect. <br> To cancel the new passwords, press the <br> CANCEL key. Pressing either key the pass- <br> cill display the Memory setting mode <br> menu Screen again. |

Reference1: The digits entered in the data field of each data item will be shifted to the left one after another.

Reference2: When the number of entered digits exceeds 4 or 8 , the leftmost character will disappear.

Reference1: The digits entered in the data field of each data item will be shifted to the left one after another.

Reference2: When the number of entered digits exceeds 4 or 8 , the leftmost character will disappear.

Reference3: Setting the key operator password, weekly timer password, and HDD management password to "0000" allows you to use individual modes without passwords. That is, the menu screen of each mode appears directly without displaying the password input screen.

## [11] Setting the Telephone Number and/or Fax Number of the Service Center

This function allows you to set the telephone number and/or fax number of the service center displayed when a service call occurs. The telephone number and/or fax number are/is also displayed as the basic help topic "Contact Number of Service Center" on the user screen. This function is not related to the KRDS functions; the telephone number and/or fax number are/is just displayed on the screen.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Select the " 7] Telephone number/FAX <br> number setting". |
| 3 | [Customer support TEL/FAX setting <br> Screen] <br> Select "Service center Telephone num- <br> ber (16 digits)" or "Service center Fax <br> number (16 digits)". |
| 4 | Enter the telephone or fax number using <br> numeric keys. |
| 5 | To set both telephone number and fax <br> numbers, perform steps 3 and 4 repeat- <br> edly. |
| 6 | Press the OK <br> phone number and/or fax number to take <br> effect. <br> To cancel the telephone number and/or <br> fax number, press the <br> CANCEL |
| Pressing either key will display the Mem- <br> ory setting mode menu Screen again. |  |

Reference1: If the length of a telephone or fax number is shorter than 16 digits, use a hyphen(s) to make the overall length 16 digits.

Reference2: The entered digits will be shifted to the left one after another, starting at the right end.

## [12] Setting the Serial Number

This function allows you to display, set, or change the serial number of the main body or option. Serial number data can also be read from KRDS.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | $[$ Memory setting mode menu Screen] <br> Select the " 8 Serial number setting". |
| 3 | [Serial number setting mode Screen] <br> Press the key you want to change <br> among the Main body] , Option tray] <br> or Finisher key. |
| 4 | Enter the serial number using alphabetic <br> and numeric keys. |
| 5 | Perform steps 3 and 4 repeatedly to set <br> other serial numbers. |
| 6 | Press the OK key to allow the serial <br> numbers to take effect. <br> To cancel the serial numbers, press the <br> CANCEL] key. Pressing either key <br> cill display the Memory setting mode <br> menu Screen again. |

Reference1: If the set serial number is invalid, a pop-up window appears to display a warning message. Press the OK key to close the pop-up window, then enter a valid serial number again.
Reference2: The entered characters will be
shifted to the left one after another, starting at the right end.

## [13] Displaying the ROM Version

This function allows you to display the versions of the installed ROMs.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] |
| Select the " 9) Indication of ROM ver- |  |
| sion". |  |

## [14] KRDS setting

## 4 See the "KRDS Setup Manual".

## [15] ISW setting

See the chapter "ISW".

## [16] Setting date

Set the total count start day.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Press " "12] Setting date input". |
| 3 | [Setting date input Screen] <br> Using the numeric keys, input the new <br> setting date. |
| 4 | Press the ©K] key to return to the <br> Memory setting mode menu Screen. |

## Note:

Ends when the CANCEL key is pressed without amending the entered date, and returns to the Memory setting mode menu Screen.

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## 36 MODE

## [1] Setting Method

This machine is provided with 36 Mode as an adjustment mode.
This mode is used to perform various adjustments.

1. Turn off SW2 (sub power).
2. Turn on SW2 while holding down both paper quantity buttons 3 and 6 .
The Adjustment mode menu Screen appears. At this point, you are in 36 mode and normal copy operation is disabled.

## [Adjustment mode menu Screen]


3. Press the number key corresponding to the item to adjust.
The setting screen for each item is displayed.
4. Enter data in each adjustment screen.
5. If there are several adjustment items, press the NEXT or BACK key to select the desired item. If there are more screens below, press the key displayed on screen to change screen.
6. Enter data and press the SET key if it is available, to confirm your entry.
7. Press the RETURN key to end adjustment.
8. Turn off the SW2 and exit the 36 mode.
9. The new adjustment values take effect after restarting the machine.

## [2] High Voltage Adjustment

Adjusting the high voltage for charging, transfer, separation, and development.

1. Select " (1) Process adjustment" in the Adjustment mode menu Screen to display the Process adjustment mode menu Screen.
2. Press " (1) High voltage adjustment" in the Process adjustment mode menu Screen to display the High voltage adjustment mode menu.
3. High voltage adjustment consists of the following:
(1) HV adjustment (Charge)
(2) HV adjustment (Transfer)
(3) HV adjustment (Separation AC)
4. HV adjustment (Separation DC)
(5) HV adj. (Charging grid voltage)
(6) HV adj. (Bias of development)

7 Transfer guide confirm
8) HV adjustment (TGR)
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item is displayed.
5. When adjustment completes, the screen returns to the High voltage adjustment mode menu screen.
6. Press the RETURN key in the High voltage Adjustment mode menu Screen to return to the Process adjustment mode menu Screen.

1. Charging main manual adjustment

Charging main manual adjustment is inhibited in the field.
2. Transfer manual adjustment

Default setting value must be set under the guidance of Konica Technology Support Center.
3. Separation (AC) manual adjustment Default setting value must be set under the guidance of Konica Technology Support Center.
4. Separation (DC) manual adjustment

Default setting value must be set under the guidance of Konica Technology Support Center.
5. Charging grid manual adjustment See [3] "Charging Grid Voltage Adjustment".
6. Developing bias manual adjustment

Default setting value must be set under the guidance of Konica Technology Support Center.
7. Transfer guide confirm

Transfer guide confirm is inhibited in the field.
8. TGR manual adjustment

TGR manual adjustment is inhibited in the field.

## [3] Charging Grid Voltage Adjustment

Adjusting the charging grid voltage. Before performing this adjustment, Check that the drum counter was reset.

3
Preparation: Insert the door SW jig to interlock $M S / L$ and interlock MS/R.

| Step | Operation |
| :---: | :--- |
| 1 | Check the adjustment value of the charg- <br> ing grid voltage on the durm flange. |
| 2 | Connect the V tester as shown below. <br> +: Grid pin <br> $-:$ GND (Earth) <br> Range: DC1000V |
| 3 | Enter the 36 mode. |
| 4 | [Adjustment mode menu Screen] <br> Press " 1] Process adjustment". |
| 5 | [Process adjustment mode menu <br> Screen] <br> Press " © High voltage adjustment". |
| 6 | [High voltage adjustment mode menu <br> Screen] <br> Press " [5 HV adj. (Charging grid volt- <br> age)". |


| 7 | [HV adjustment (Charging grid volt- <br> age) Screen] <br> Press START button, and check the <br> voltage shown, then press CANCEL but- <br> ton. |
| :---: | :--- |
| 8 | When the voltage measured is not sat- <br> isfactory, change the data using the <br> numeric keys on the screen and press <br> the SET key. |
| 9 | Turn the SW2 (sub power) OFF. |

```
Standard value: Specified value on the drum flange \(\pm 5 \mathrm{~V}\)
Range of input: 0 to 255
1 step: \(\quad 1.6 \mathrm{~V}\)
```



## [4] Drum Peculiarity Adjustment

Adjusting the blade set, maximum density (Dmax), dot diameter, laser offset and gamma.

1. Select " (1) Process adjustment" in the Adjustment mode menu Screen to display the Process adjustment mode menu Screen.
2. Press " 2) Drum peculiarity adjustment" in the Process adjustment mode menu Screen to display the Drum peculiarity adjustment mode menu Screen.
3. Drum Peculiarity Adjustment consists of the following:
(1) Blade setting mode
(2) Auto maximum density adj.
(3) Auto dot diameter adjustment
(4) LD1 offset adjustment
(5) LD2 offset adjustment
6) LD1 bias adjustment
7) LD2 bias adjustment
8) Auto gamma adjustment (1 dot)
(9) Auto gamma adjustment (2 dot)
(10) Cartridge set mode
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item is displayed.
5. When adjustment completes, the screen returns to the Drum peculiarity adjustment mode menu Screen.
6. Press the RETURN key in the Drum peculiarity adjustment mode menu Screen to return to the Process adjustment mode menu Screen.
7. Blade setting mode

In this mode, toner stuck on the drum surface during replacement of the cleaning blade or drum is removed to prevent damage to the drum and cleaning blade.

Preparation: Be sure the drum unit is set.
Apply setting powder to all the surface of the drum.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2. Drum peculiarity adjustment". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " 1 Blade setting mode". |
| 5 | [Blade setting mode Screen] <br> Press the Start key. <br> Adjustment completes in about 1 second and a complete message is displayed. |
| 6 | Press the RETURN key to return to the Drum peculiarity adjustment mode menu Screen. |

## 2. Auto maximum density adjustment (Dmax adjustment)

Automatically adjusting the maximum density (Dmax). This adjustment should be performed when the drum, developer, write unit, or dustproof glass is replaced.

Preparation: Be sure the drum unit is set and developer is in the developing unit.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2. Drum peculiarity adjustment.". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " 2 Auto maximum density adj." |
| 5 | [Auto maximum density adjustment Screen] <br> Press the Start key. <br> The maximum density (Dmax) is adjusted automatically. <br> Adjustment completes in about 15 seconds and an complete message is displayed. |
| 6 | Press the RETURN key to return to the Drum peculiarity adjustment mode menu Screen. |

## Reference:

If any one of the following error messages appears during auto maximum density adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto maximum density adjustment.
<1> Error 1: The Dmax sensor dirt correction has been corrected.
<2>Error 2: Maximum density adjustment is not complete when the number of rotation of developing sleeve reaches the specified value.
<3>Error 3: No signal is output from the Dmax sensor. No control patch is output.

## 3. Auto dot diameter adjustment

Automatically adjusting the dot diameter.
This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set and developer is in the developing unit.
Auto maximum density adjustment must have been completed.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2] Drum peculiarity adjustment". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " (3) Auto dot diameter adjustment". |
| 5 | [Auto dot diameter adjustment Screen] <br> Press the Start key. <br> The dot diameter is adjusted automatically. Adjustment completes in about 10 seconds and a complete message is displayed. |
| 6 | Press the RETURN key to return to the Drum peculiarity adjustment mode menu Screen. |

## Reference:

If either of the following error messages appears during auto dot diameter adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto dot diameter adjustment.
<1> Error 1: The $\gamma$ sensor dirt correction has been corrected.
<2>Error 2: Auto dot diameter adjustment has ended with an abnormal value.

## 4. LD1 offset adjustment

This adjusts the place at which LD1 laser starts writing.
This adjustment should be performed when the drum or developer is replaced.
In the case of the 7155/7165
The adjustment is performed at line speed of 320, 280 and 185 respectively.
In the case of the 7255/7272
The adjustment is performed at line speed of 345,280 and 172.5 respectively.

Preparation: Be sure the drum unit is set. Auto maximum density adjustment and auto dot diameter adjustment must have been completed.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 1] Process adjustment". |
| 3 | [Process adjustment mode menu <br> Screen] <br> Press " 2] Drum peculiarity adjust- <br> ment". |
| 4 | [Drum peculiarity adjustment mode <br> menu Screen] <br> Press " 4] LD1 offset adjustment". |
| 5 | [LD1 offset adjustment Screen] <br> Press any key of LS320] , LS280, or <br> LS185]. (in the case of the 7155/7165) <br> Press any key of LS345] , LS280 or <br> LS172.5) . (in the case of the 7255/7272) |
| 6 | Press the COPY SCREEN key. |
| 7 | Select 11x17 size paper and press the <br> START button to output the test pattern. |



## Reference:

Select LS320 to adjust in normal mode (line speed $320 \mathrm{~mm} / \mathrm{sec}$.), LS280 to adjust in postcard mode ( $280 \mathrm{~mm} / \mathrm{sec}$.) (Japan only), or LS185 to adjust in thick paper mode ( $185 \mathrm{~mm} / \mathrm{sec}$.).

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5. LD2 offset adjustment

This adjusts the place at which LD2 laser starts writing.
This adjustment should be performed when the drum or developer is replaced.
In the case of the 7155/7165
The adjustment is performed at line speed of 320, 280 and 185 respectively.

## In the case of the 7255/7272

The adjustment is performed at line speed of 345,280 and 172.5 respectively.

Preparation: Be sure the drum unit is set.
Auto maximum density adjustment, auto dot diameter adjustment, and LD1 offset adjustment must have been completed.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2] Drum peculiarity adjustment". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " (5) LD2 offset adjustment". |
| 5 | [LD2 offset adjustment Screen] Press any key of LS320, LS280, or LS185. (in the case of the 7155/7165) Press any key of LS345, LS280 , or LS172.5 . (in the case of the 7255/7272) |
| 6 | Press the COPY SCREEN key. |
| 7 | Select 11x17 size paper and press the START button to output the test pattern. |



## Reference:

Select LS320 to adjust in normal mode (line speed $320 \mathrm{~mm} / \mathrm{sec}$.), LS280 to adjust in postcard mode ( $280 \mathrm{~mm} / \mathrm{sec}$.) (Japan only), or LS185 to adjust in thick paper mode ( $185 \mathrm{~mm} / \mathrm{sec}$.).

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## 6. LD1 bias adjustment

LD1 bias adjustment is inhibited in the field.

## 7. LD1 bias adjustment

LD1 bias adjustment is inhibited in the field.
8. Auto gamma adjustment (1 dot)

Performs gamma adjustment (1 dot) automatically.
This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set.
Auto maximum density adjustment, auto dot diameter adjustment, LD1 offset adjustment and, LD2 offset adjustment must have been completed.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " [1] Process adjustment". |
| 3 | [Process adjustment mode menu <br> Screen] |
| 4 | Press " [2] Drum peculiarity adjust- <br> ment". |
| 5 | [Drum peculiarity adjustment mode <br> menu Screen] <br> Press " 8] Auto gamma adjustment <br> $(1$ dot)". |
| [Auto gamma adjustment (1 dot) |  |
| Screen] |  |
| Press the <br> The drum and developer operate to <br> automatically adjust Gamma. <br> Adjustment completes in about 10 sec- <br> onds and a complete message is dis- <br> played. |  |
| 6 | Press the <br> the Drum peculiarity adjustment mode <br> menu Screen. |

## Reference:

If any one of the following error messages appears during auto gamma adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto gamma adjustment.
<1>Error 1: The $\gamma$ sensor dirt correction has been corrected.
$<2>$ Error 2: No signal is output from the $\gamma$ sensor. No control patch is output.
<3>Error 3: A recurrence error occurred during $\gamma$ curve calculation.

## 9. Auto gamma adjustment (2 dot)

Performs gamma adjustment (2 dot) automatically. This adjustment should be performed when the drum, developer, write unit, or dust-proof glass is replaced.

Preparation: Be sure the drum unit is set. Auto maximum density adjustment, auto dot diameter adjustment, LD1 offset adjustment, LD2 offset adjustment, and auto gamma adjustment (1 dot) must have been completed.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2) Drum peculiarity adjustment". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " 9) Auto gamma adjustment (2 dot)". |
| 5 | [Auto gamma adjustment (2 dot) Screen] <br> Press the Start key. <br> The drum and developer operate to automatically adjust Gamma. <br> Adjustment completes in about 10 seconds and an complete message is displayed. |
| 6 | Press the RETURN key to return to the Drum peculiarity adjustment mode menu Screen. |

## Reference:

If any one of the following error messages appears during auto gamma adjustment, clean the TSCB (toner control sensor board), check its installation state, and retry the auto gamma adjustment.
<1>Error 1: The $\gamma$ sensor dirt correction has been corrected.
<2>Error 2: No signal is output from the $\gamma$ sensor. No control patch is output.
<3>Error 3: A recurrence error occurred during $\gamma$ curve calculation.

## 10. Cartridge set mode

$\triangle$ This adjustment should be performed when black dots appears on the copy after the drum removing and installing.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Press " 2) Drum peculiarity adjustment". |
| 4 | [Drum peculiarity adjustment mode menu Screen] <br> Press " 10 Cartridge set mode". |
| 5 | [Cartridge set mode Screen] Press the Start key. |
| 6 | The developing unit and the drum rotate for two mintes, and return to Cartridge set mode Screen. |
| 7 | Press the COPY SCREEN key. |
| 8 | Select the wide paper (ie A3, A4, 11x17, $8.5 \times 11$ ) in the direction of the drum shaft, set 10 copies, and press START button. |
| 9 | If black dots still appear, press the C button while pressing the P button to return to the cartridge set mode, and repeat the step 5 to 8 . |
| 10 | Press the C button while pressing P button when black dots disappear. |
| 11 | Press RETURN key to return to the Drum peculiarity adjustment mode menu Screen. |


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## [5] Drum Peculiarity Adjustment (Manual)

1. Maxiumum density manual adjustment

This adjustment must be performed under the guidance of the authorized distributor.
Variable range: 0 to 41
4 2. Dot diameter manual adjustment
This adjustment must be performed under the guidance of the authorized distributor.
Variable range: 0 to 255

## [6] User Paper Setting

This adjustment is only performed when the user uses special copy paper and can not be adjusted using the standard adjustment process.
This setting is applied when "User" is selected for "Paper type/Special size setting" in the key operator mode or when "User paper" is selected for "Transfer/ separation output for plain paper" or "recycled paper" in 25 mode DIPSW.
The data for 16 lb . plain paper" is input as the default.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " © 1$]$ |
| 3 | Process adjustment". |
| [Process adjustment mode menu |  |
|  | Screen] <br> Select " 4] User paper setting". |
| 4 | Transfer/separation output screen <br> appears. <br> Enter data according to the user speci- <br> fied paper. Data should be input under <br> the guidance of the authorized distribu- <br> tor. |


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## [7] Recall Standard Data (Process Adjustment)

Restoring process adjustment settings to standard values (factory setting data).

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " (1) Process adjustment". |
| 3 | [Process adjustment mode menu Screen] <br> Select " (5) Recall standard data". |
| 4 | [Recall standard data Screen] <br> Press the YES key. <br> Various data is restored to standard values. |
| 5 | Press the RETURN key to return to the Process adjustment Screen. |

## [8] Tray Adjustment

This adjustment should be performed when the tray or by-pass unit is replaced.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menun Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Select " 1 Tray adjustment". |
|  | [Tray adjustment Screen] <br> Press the NEXT or BACK key to select the tray to be adjusted. <br> The screen changes from Tray 1 to Tray 2 to Tray 3 to By-pass tray 1 to By-pass | tray 2. (7155/7165)

The screen changes from Tray 3 to Tray
4 to By-pass tray 1 to By-pass tray 2. (7255/7272)
4
Using a scale, perform each adjustment individually, set the distance between (the inner surfaces of) the paper side guide plates of each tray to 210 mm (A4R) .
Set the distance between (the inner surfaces of ) the paper side guide plates of by-pass tray 1 to 210 mm (A4R) and tray 2 to $280 \mathrm{~mm}(8.5 \times 11)$ respectively.Various data is restored to standard values.

Press the Start key.
The selected tray is automatically
5 adjusted.
After adjustment completes, a message is displayed.

6 Press the RETURN key.

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## [9] Magnification Adjustment

Adjusting the printer and copy vertical and horizontal magnifications.

1. Select " 2] Image adjustment" in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press " 2) Magnification adjustment" in the Image adjustment mode menu Screen to display the Magnification adjustment mode menu Screen.
3. Magnification adjustment consists of the following:
(1) Printer drum clock adjustment
(2) Printer horizontal adjustment
(3) Scanner drum clock adjustment
(4) RADF drum clock adjustment
4. Press the number key corresponding to the item to be adjusted.
5. After adjustment completes, return to the Magnification adjustment menu Screen.
6. Press the RETURN key on the Magnification adjustment menu Screen to return to the Image adjustment mode menu Screen.

Caution: Check and adjust the printer vertical magnification adjustment during maintenance. Also adjust the printer restart timing because it changes with the printer vertical magnification adjustment

1. Printer drum clock magnification adjustment
Adjusting the printer vertical magnification.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Select " (2) Magnification adjustment". |
| 4 | [Magnification adjustment mode menu Screen] <br> Press " 1 Printer drum clock adjustment". |
| 5 | [Printer drum clock adjustment Screen] <br> Press the COPY SCREEN key. |
| 6 | Select $11 \times 17$ size paper and press the START button to output the test pattern (No.16). |
| 7 | Measure the vertical magnification with a ruler. <br> Specification: <br> $\pm 0.5 \%$ or less ( $100 \%$ magnification) <br> Within $\pm 1 \mathrm{~mm}$ with respect to 206 mm . |
| 8 | If the specification is not satisfied, press the C button while pressing the P button. |
| 9 | [Printer drum clock adjustment Screen] <br> Enter a value using the numeric keys and press the SET key. <br> Setting range: -27 to +100 <br> 1 step=0.05\% |
| 10 | Repeat steps 5 to 9 until the specification is satisfied. |
| 11 | Press the RETURN key to return to the Magnification adjustment mode menu Screen. |

## 2. Printer horizontal magnification adjustment

Adjusting the horizontal magnification.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Select " 2) Magnification adjustment". |
| 4 | [Magnification adjustment mode menu Screen] <br> Press" (2) Printer horizontal magnification adjustment". |
| 5 | [Printer horizontal adjustment Screen] Press the COPY SCREEN key. |
| 6 | Select $11 \times 17$ size paper and press the START button to output the test pattern (No.16). |
| 7 | Measure the horizontal magnification with a ruler. <br> Specification: <br> $\pm 0.5 \%$ or less ( $100 \%$ magnification) <br> Within $\pm 1 \mathrm{~mm}$ with respect to 190 mm . |
| 8 | If the specification is not satisfied, press the C button while pressing the P button. |
| 9 | [Printer horizontal adjustment <br> Screen] <br> Enter a value using the numeric keys <br> and press the SET key. <br> Setting range: -10 to +10 <br> 1 step=0.1\% |
| 10 | Repeat steps 5 to 9 until the specification is satisfied. |
| 11 | Press the RETURN key to return to the Magnification adjustment mode menu Screen. |

## 3. Scanner (platen) drum clock magnification adjustment

Adjusting the vertical magnification for the scanner.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Select " 2] Magnification adjustment". |
| 4 | [Magnification adjustment mode menu Screen] <br> Press " (3) Scanner drum clock adjustment". |
| 5 | [Scanner (Platen) drum clock adjustment Screen] Press the COPY SCREEN key. |
| 6 | Select $11 \times 17$ size paper, set a pyramid chart on the original glass, and press the START button. |
| 7 | Measure the vertical magnification with a ruler. <br> Specification: <br> $\pm 0.5 \%$ or less ( $100 \%$ magnification) <br> Within $\pm 1 \mathrm{~mm}$ with respect to 200 mm . |
| 8 | If the specification is not satisfied, press the C button while pressing the P button. |
| 9 | [Scanner (Platen) drum clock adjustment Screen] <br> Enter a value with the numeric keys and press the SET key. <br> Setting range: - 40 to +40 <br> 1 step=0.05\% |
| 10 | Repeat steps 5 to 9 until the specification is satisfied. |

4. Scanner (RADF) drum clock magnification adjustment
Adjusting the vertical magnification during RADF copy.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Select " 2) Magnification adjustment". |
| 4 | [Magnification adjustment mode menu Screen] <br> Press " (4) RADF drum clock adjustment". |
| 5 | [RADF drum clock adjustment Screen] <br> Press the NEXT or BACK key to select the magnification to be adjusted. The screen rotates from $100 \%$ to $50 \%$ to $200 \%$ to $400 \%$. |
| 6 | Press the COPY SCREEN key. |
| 7 | Select $11 \times 17$ size paper, set an adjustment chart on RADF, and press the START button. |
| 8 | Measure the vertical magnification with a ruler. <br> Specification: <br> $\pm 0.5 \%$ or less ( $100 \%$ magnification) <br> Within $\pm 1 \mathrm{~mm}$ with respect to 190 mm . |
| 9 | If the specification is not satisfied, press the C button while pressing the P button. |


| 10 | [RADF drum clock adjustment <br> Screen] <br> Enter a value with the numeric keys and <br> press the SET key. <br> Setting range: -40 to +40 <br> 1 step=0.05\% |
| :---: | :--- |
| 11 | Repeat steps 5 to 11 until the specifica- <br> tion is satisfied. |
| 12 | Press the BACK key to return to the <br> Magnification adjustment mode menu <br> Screen. |

## [10] Timing Adjustment

Adjusting the leading edge timing (paper feed restart timing), registration loop amount, and leading edge erasure amount.

1. Select (2) Image adjustment in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press " (3) Timing adjustment" in the Image adjustment mode menu Screen to display the Timing adjustment mode menu Screen.
3. Timing adjustment consists of the following adjustments:
(1) Printer restart timing adj.
(2) Printer regist loop adjustment
(3) Printer pre-registration adjustment
(4) Printer lead edge timing adj.
(5) Scanner restart timing adj.
6) RADF restart timing adjustment
(7) RADF regist loop adjustment
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item appears.
5. After adjustment completes, return to the Timing adjustment mode menu Screen.
6. Press the RETURN key in the Timing adjustment mode menu Screen to return to the Image adjustment mode menu Screen.

## 1. Printer restart timing adjustment

4 This adjusts the printer restart timing (paper feed timing). The adjustment is performed at line speed of 320,280 and 185 respectively.
IIn the case of the 7155/7165
The adjustment is performed at line speed of 320, 280 and 185 respectively.
In the case of the 7255/7272
The adjustment is performed at line speed of 345,280 and 172.5 respectively.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " (1) Printer restart timing adj". |
| 5 | [Printer restart timing adjustment Screen] <br> Press any key of LS320, LS280, or LS185. (in the case of the 7155/7165) Press any key of LS345, LS280 , or LS172.5 ( (in the case of the 7255/7272) |
| 6 | Press the COPY SCREEN key. |
| 7 | Select 11x17-size paper and press the START button to output the test pattern (No.16). |
| 8 | Check the leading edge detection timing. <br> Specification: $20 \mathrm{~mm}+1.0 \mathrm{~mm}-0 \mathrm{~mm}$ |
| 9 | If the specification is not satisfied, press the C button while pressing the P button. |


| Step | Operation |
| :---: | :--- |
| 10 | [Printer restart timing adjustment <br> Screen] <br> Enter a value with the numeric keys and <br> press the SET |
| Setting range: -30 to +60 <br> 1 step=0.1mm |  |
| 11 | Repeat steps 5 to 10 until the specifica- <br> tion is satisfied. |
| 12 | Press the <br> Timing adjustment mode menu Screen. |


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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-61$ | REPLACEMENT |

## 2. Printer registration loop adjustment

Adjusting the printer registration loop amount for trays (7155/7165 : tray 1, 2, 3) (7255/7272 : tray $\qquad$ $1,2,3,4)$, LCT, by-pass tray, and ADU.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " 2] Printer regist loop adjustment". |
| 5 | [Printer regist loop adj Screen] <br> Press the NEXT or BACK key to select the item to be adjusted. <br> The screen changes from Tray to Bypass tray to ADU. |
| 6 | Press the COPY SCREEN key. |
| 7 | Press the START button to make a copy. |
| 8 | Check the printer registration loop amount. |
| 9 | If the printer registration loop amount is not appropriate, press the C button while pressing the P button. |
| 10 | [Printer regist loop adj. Screen] <br> Enter a value with the numeric keys and press the SET key. <br> - Tray and LCT <br> (7155/7165 : tray 1, 2, 3) <br> (7255/7272 : tray 1, 2, 3, 4) <br> Setting range: -5 to +5 <br> 1 step=2ms <br> - By-pass tray <br> Setting range: -10 to +10 <br> 1 step=2ms <br> - ADU <br> Setting range: -10 to +10 <br> 1 step=2ms |
| 11 | Repeat steps 5 to 10 until the printer registration loop amount is appropriate. |


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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-61-1$ | ADDITION |

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-61-2$ | REPLACEMENT |

## 3. Printer pre-registration amount adjustment

4 Adjusting the pre-registration loop amount for trays (7155/7165 : tray 1, 2, 3) (7255/7272 : tray $1,2,3,4)$, LCT and ADU.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " 3) Printer pre-registration adjustment". |
| 5 | [Printer pre-regist adj. Screen] Press the NEXT or BACK key to select the item to be adjusted. The screen changes from Tray 1 to Tray 2 to Tray 3 to Tray 4 to LCT to ADU. |
| 6 | Press the COPY SCREEN key. |
| 7 | Press the START button to make a copy. |
| 8 | Check the printer pre-registration loop amount. |
| 9 | If the printer pre-registration loop amount is not appropriate, press the C button while pressing the P button. |
| 10 | [Printer pre-regist adj. Screen] <br> Enter a value with the numeric keys and press the SET key. <br> - Tray and LCT (7155/7165 : tray 1, 2, 3) (7255/7272 : tray 1, 2, 3, 4) Setting range: -5 to +5 1 step=2ms <br> - ADU <br> Setting range: -10 to +10 1 step=2ms |
| 11 | Repeat steps 5 to 10 until the printer preregistration loop amount is appropriate. |
| 12 | Press the RETURN key to return to the Timing adjustment mode menu Screen. |

## 4. Printer leading edge timing adjustment

Adjusting the printer leading edge timing (image erasure amount).

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " (2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " 4] Printer lead edge timing adjustment". |
| 5 | [Printer lead edge timing adjustment Screen] <br> Press the COPY SCREEN key. |
| 6 | Select 11x17 size paper, place a pyramid chart on the original glass, and press the START button. |
| 7 | Check the printer leading edge erasure amount. <br> Specification: Within 3mm |
| 8 | If the printer leading edge erasure amount is not appropriate, press the C button while pressing the P button. |
| 9 | [Printer lead edge timing adjustment Screen] <br> Enter a value with the numeric keys and press the SET key. <br> Setting range: -20 to +40 <br> 1 step $=0.1 \mathrm{~mm}$ |
| 10 | Repeat steps 5 to 10 until the printer leading edge erasure amount is within specification. |
| 11 | Press the RETURN key to return to the Timing adjustment mode menu Screen. |


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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $1-62$ | REPLACEMENT |

5. Scanner (platen) restart timing adjustment

Adjusting the scanner restart timing during platen copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " (3) Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " (5) Scanner restart timing adj.". |
| 5 | [Scanner (platen) restart timing adj. Screen] Press the COPY SCREEN key. |
| 6 | Select 11x17-size paper, set a pyramid chart on the original glass, and press the START button. |
| 7 | Check the restart timing. Specification: Within 3mm |
| 8 | If the leading edge timing is not appropriate, press the C button while pressing the P button. |
| 9 | [Scanner (platen) restart timing adj. <br> Screen] <br> Enter a value with the numeric keys and press the SET key. <br> Setting range: -60 to +20 <br> 1 step $=0.1 \mathrm{~mm}$ |
| 10 | Repeat steps 5 to 10 until the leading edge timing is within specification. |
| 11 | Press the RETURN key to return to the Timing adjustment mode menu Screen. |

Adjusting the scanner leading edge timing during RADF copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " 6) RADF restart timing adjustment". |
| 5 | [RADF restart timing adj. Screen] Press the COPY SCREEN key and then switch to double sided/single sided copy mode. |
| 6 | Select $11 \times 17$ size paper, set an adjustment chart on RADF, and press the START button. |
| 7 | Check the leading edge timing on front and back side. <br> Specification: Within 3mm |
| 8 | If the restart timing is not appropriate, press the C button while pressing the P button. |
| 9 | [RADF restart timing adj. Screen] Press the NEXT or BACK key to select the item to be adjusted. The screen changes from single side to dou-ble-side (front), to double side (back) copy. |
| 10 | Enter a value with the numeric keys and press the SET key. <br> Setting range: -60 to +50 <br> 1 step $=0.1 \mathrm{~mm}$ |
| 11 | Repeat steps 5 to 10 until the leading edge timing is within specification. |
| 12 | Press the RETURN key to return to the Timing adjustment mode menu Screen. |

## 7. RADF registration loop amount adjustment

Adjusting the registration loop amount during RADF copy.

Caution: Printer restart timing adjustment must be completed before performing this adjustment.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 3 Timing adjustment". |
| 4 | [Timing adjustment mode menu Screen] <br> Press " 7 RADF regist loop adjustment". |
| 5 | [RADF regist loop adjustment Screen] <br> Press the COPY SCREEN key and then switch to double-sided / singlesided copy mode. |
| 6 | Select 11x17 size paper, set an adjustment chart on RADF, and press the START button. |
| 7 | Check the loop amounts on the front and back side. |
| 8 | If the registration loop amount is not appropriate, press the C button while pressing the P button. |
| 9 | [RADF regist loop adjustment Screen] <br> Press the NEXT or BACK key to select the item to be adjusted. The screen changes from single sided to double sided (front) to double sided (back), to double sided pre-registration. |
| 10 | Enter a value with the numeric keys and press the SET key. <br> Setting range: -10 to +10 <br> 1 step $=0.5 \mathrm{~mm}$ |
| 11 | Repeat steps 5 to 11 until the registration loop amount is within specification. |
| 12 | Press the RETURN key to return to the Timing adjustment mode menu screen. |

## [11] RADF Adjustment

Performing RADF density adjustment, RADF original size adjustment and RADF skew offset adjustment.

1. Select (2) Image adjustment in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press (4] RADF adjustment in the Image adjustment mode menu Screen and display the RADF adjustment mode menu Screen.
3. RADF adjustment consists of the following items:
(1) RADF density adjustment
(2) RADF original size adjustment
(3) RADF Incline offset adjustment
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item appears.
5. After adjustment completes, return to the RADF adjustment mode menu Screen.
6. Press the RETURN key in the RADF adjustment mode menu Screen to return to the Image adjustment mode menu Screen.

## 1. RADF density adjustment

When the original reader slit glass is replaced, the density when reading originals with the RADF must be adjusted.

Preparation: Wipe the original reader slit glass clean. Check that the white chart is not dirty or folded.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " (2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 4] RADF adjustment". |
| 4 | [RADF adjustment mode menu Screen] <br> Press " 1 RADF density adjustment". |
| 5 | [RADF density adjustment Screen] Set white chart on RADF (Caution 1). |
| 6 | Press the Start key. <br> RADF density is adjusted automatically. When adjustment completes, a message appears on the screen. |
| 7 | If an error message is displayed, repeat steps 5 and 6 (Caution 2). |
| 8 | Press the RETURN key to return to the RADF adjustment mode menu Screen. |

Caution1: Be sure to set the white chart in A4 orientation.
Caution2: If the error message appears repeatedly, there is a possibility of scanner system mechanical, optical, or electrical adjustment error or parts defect.
2. RADF original size adjustment

Perform this adjustment when the RADF original size detection does not operate properly.

Caution: RADF original size adjustment consists of A4 and A5R. Use the NEXT or BACK key to select the desired adjustment item.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " (4] RADF adjustment". |
| 4 | [RADF adjustment mode menu Screen] <br> Press " 2] RADF original size adjustment". |
| 5 | [RADF original size adj. Screen] Press the NEXT or BACK key to select original size to adjust. The screen changes between $8.5 \times 11$ to 5.5×8.5R. |
| 6 | Set the original of the selected size on RADF and press the Start key. RADF original size is adjusted automatically. |
| 7 | Repeat steps 5 and 6 and adjust both sizes. |
| 8 | Press the RETURN key to return to the RADF adjustment mode menu Screen. |

## 3. RADF incline offset adjustment

Adjusting the standard value of the distortion adjustment (Copier).

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " <br> (4) RADF adjustment". |
| 4 | [RADF adjustment mode menu Screen] <br> Press " 3) RADF Incline offset adjustment". |
| 5 | [RADF Incline offset adjustment Screen] <br> Press the COPY SCREEN key. |
| 6 | Select $11 \times 17$ size paper, set an adjustment chart on RADF, and press the START button. |
| 7 | Check the RADF skew offset amount. Specification: 0.5\% |
| 8 | If the RADF incline offset amount is not appropriate, press the C button while pressing the P button. |
| 9 | [RADF Incline offset adjustment Screen] <br> Enter a value with the numeric keys and press the SET key. <br> Setting range: -60 to +60 <br> 1 step=0.05\% |
| 10 | If the RADF skew offset amount is not within specification, repeat steps 5 to 9 . |
| 11 | Press the RETURN key to return to the RADF adjustment mode menu Screen. |

## [12] Centring Adjustment

Perform this adjustment to centre the image in a direction perpendicular to the paper feed direction.

1. Select " (2) Image adjustment" in the Adjustment mode menu Screen to display the Image adjustment mode menu Screen.
2. Press " 5 Centring adjustment" in the Image adjustment mode menu Screen to display the Centring adjustment menu screen.
3. Centring adjustment consists of the following:
(1) Printer centring adjustment
(2) Scanner centring adjustment
(3) RADF centring adjustment
4. Press the number key corresponding to the item to be adjusted.
The adjustment screen of the selected item appears.
5. After adjustment completes, return to the Centring adjustment menu Screen.
6. Press the RETURN key in the Centring adjustment menu screen to return to the Image adjustment mode menu Screen.

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| KOnica7155/7165 | SERVICE HANDBOOK | $\widehat{1}$ | Nov. 2001 | $1-66$ | REPLACEMENT |

## 1. Printer Centring Adjustment

Adjusting the printer centring.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 2 Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " (5) Centring adjustment". |
| 4 | [Centring adjustment mode menu Screen] <br> Press " 1 Printer centring adjustment" |
| 5 | [Printer centring adjustment Screen] Press the COPY SCREEN key. |
| 6 | Select 11x17-size paper and press the START button to output the test pattern (No.16). |
| 7 | Fold $11 \times 17$ size paper in half in the short edge (landscape) orientation and check whether the lines on the left and right overlap completely. <br> Specification: $\pm 1 \mathrm{~mm}$ or less |
| 8 | If the printed image is not appropriate, press the C button while pressing the P button. |
| 9 | [Printer centring adjustment Screen] Enter a value with the numeric keys and press the SET key. <br> Setting range: -64 to +63 1 step $=0.1 \mathrm{~mm}$ |
| 10 | Repeat steps 5 to 9 until the offset is within specification. |
| 11 | Press the RETURN key to return to the Centring adjustment mode menu Screen. |

2. Scanner (platen) centring adjustment

Adjusting the scanner (platen) centring.
Preparation: Printer centring adjustment must be completed before performing this adjustment.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " (5) Centring adjustment". |
| 4 | [Centring adjustment mode menu Screen] <br> Press " 2) Scanner centring adjustment". |
| 5 | [Scanner (Platen) centring adjustment Screen] <br> Press the COPY SCREEN key. |
| 6 | Select 11x17-size paper, set a pyramid chart on the original glass, and press the START button. |
| 7 | Fold 11x17 size paper in half in the short edge (landscape) orientation and check whether the lines on the left and right overlap completely. <br> Specification: $\pm 2 \mathrm{~mm}$ |
| 8 | If the offset is not within specification, press the C button while pressing the P button. |
| 9 | [Scanner (Platen) centring adjustment Screen] <br> Enter a value with the numeric keys and press the SET key. <br> Setting range: -30 to +30 <br> 1 step $=0.1 \mathrm{~mm}$ |
| 10 | Repeat steps 5 to 9 until the offset is within specification. |
| 11 | Press the RETURN key to return to the Centring adjustment mode menu Screen. |

## 3. RADF centring adjustment

This adjusts centring for the RADF copy. There are six adjustment items as follows:

- Single sided small size
- Double sided (front) small size
- Double sided (back) small size
- Single sided large size
- Double sided (front) large size
- Double sided (back) large size

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " (5) Centring adjustment". |
| 4 | [Centring adjustment mode menu Screen] <br> Press " 3) RADF centring adjustment" |
| 5 | [RADF centring adj. Screen] Press the COPY SCREEN key and enter double sided / single sided copy mode. |
| 6 | Load 11x17 size paper in the tray, place small size or large size original on RADF, and press the START button. |
| 7 | Fold $11 \times 17$ size paper in half in the short edge (landscape) orientation and check whether the lines on the left and right overlap completely. <br> Specification: $\pm 1 \mathrm{~mm}$ |
| 8 | If the offset is not within specification, press the C button while pressing the P button. |
| 9 | [RADF centring adj. Screen] Press the NEXT or BACK key to select the item to be adjusted. The screen changes from single sided small size to double sided (front) small size to double sided (back) small size to single sided large size to double sided (front) large size to double sided (back) large size. |


| 10 | Enter a value with the numeric keys and <br> press the SET key. <br> Setting range: -30 to +30 <br> 1 step 0.1 mm |
| :---: | :--- |
| 11 | Repeat steps 5 to 10 until the centering <br> is within specification. |
| 12 | Press the <br> RETURN key to return to the <br> Centring adjustment mode menu <br> Screen. |

## [13] Distortion adjustment (Copier)

This is to correct distortion during platen/RADF copying. There are four adjustment items as follows:

- Scanner (platen) distortion (main scan)
- Scanner (platen) distortion (sub-scan)
- Scanner (RADF) distortion (main scan)
- Scanner (RADF) distortion (sub-scan)

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 2) Image adjustment". |
| 3 | [Image adjustment mode menu Screen] <br> Press " 6 Warp adjustment (Copier)". |
| 4 | [Scanner warp adj. Screen] <br> Press the COPY SCREEN key. |
| 5 | Select $11 \times 17$ size paper. To check the platen, set an adjustment chart on the original glass. To check RADF, set it on RADF. |
| 6 | Check for platen copy distortion or RADF copy distortion. Specification: The difference in lengths of two diagonals of a 200 mm square must be within 1.4 mm . |
| 7 | If the platen copy distortion or RADF copy distortion is not within specification, press the P button while pressing the P button. |
| 8 | [Scanner warp Adj. Screen] Press the NEXT or BACK key to select the desired adjustment item. |
| 9 | Enter a value with the numeric keys and press the SET key. <br> Range of setting: -50 to +50 <br> 1 step=0.05\% |
| 10 | Repeat steps 6 to 9 until the distortion is within specification. |
| 11 | Press the RETURN key to return to the Image adjustment mode menu Screen. |

## [14] Non-image area erase check

When this machine is installed in a place or is moved to another location, research should be conducted on the conditions under which the machine is placed.

Preparation: RADF must be opened.
Nothing should be put on the original glass. The original glass must be clean and transparent.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 2] Image adjustment". |
| 3 | [Image adjustment mode menu <br> Screen] <br> Select " 7 Non-image area erase <br> check". |
| 4 | [Non-image area erase check Screen] <br> Open the RADF, and press the Start <br> key. |
| 5 | Confirm that a message indicating that it <br> operated normally is displayed in the <br> message display. When a message <br> indicating it did not operate properly is <br> displayed, refer to Reference 1 shown <br> below. Then, perform the non-original <br> automatic erasure installation research <br> again. |

## Reference 1:

Here are measures to be taken when the following error messages are indicated.
<Error message 1>
Adjust for Extreme Brightness. In many cases, the Non-image-area-erase function will not operate correctly. Please confirm "adjustment" - "36 mode" columns of the Service Hand book.
<Countermeasure1>
If you use the non-original erasure function, or copy originals that have a dark background using the non-original erasure method, relatively infrequently, use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, re-install the
machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again.
<Error message2>
A datum with potentioal not to function non-image-area-erase is found.
Please confirm "adjustment" - "36 mode" colums of the Service Hand book.
<Countermeasure2>
If you use the non-original erasure function relatively infrequently, you can use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again. In this case, if there is a bright light source, such as a fluorescent light, directly above the machine, reconsider the installation location and direction, or take steps to block off the light from the light source (by using a cover, for example), then carry out the installation survey once again.

## [15] Recall standard data (Image adjustment)

Restoring image adjustment settings to standard values (factory setting data).

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " [2] Image adjustment". |
| 3 | Image adjustment mode menu <br> Screen] <br> Select " 8] Recall standard data". |
| 4 | Recall standard data Screen] <br> Press the YES key. <br> Various data is restored to standard val- <br> ues. |
| 5 | Press the [ RETURN] key to return to <br> the Image adjustment mode menu <br> Screen. |

## [16] Running Test Mode

Testing continuous copy operation.
Select " 3 Running test mode" in the Adjustment mode menu Screen.
This adjustment consists of the following items:
(1) Intermittent copy mode

In this mode, the machine goes into the copy ready state after completing a set number of copy operations, waits 0.5 sec , and then repeats the same operation.
(2) Paperless running mode

In this mode, the machine goes into the copy ready state after completing a set number of copy operations without performing paper detection or jam detection, waits 0.5 sec , and then repeats the same operation.
(3) Paperless mode

In this mode, the machine makes a set number of copies at approximately the same timing as for normal copy without performing paper detection or jam detection.
(4) Paperless endless mode

In this mode, the machine makes copies at approximately the same timing as for normal copy without performing paper detection or jam detection. The copy quantity is set to infinity automatically.
(5) Running mode

This mode consists of Paperless mode with repetitive scanner scan and auto paper feed tray change.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 3] Running test mode". |
| 3 | [Running test mode menu Screen] <br> Press mode keys 1] to 5 5 |
| 4 | [Copy Screen] <br> Press the START button. |
| 5 | Check the copy operation and then <br> press the STOP button to stop. |
| 6 | Turn the SW2 (sub power) OFF. |

## [17] Test pattern output mode

Output test pattern.
Select " 4] Test pattern output mode" in the Adjustment mode menu Screen to display the Test pattern output mode screen.

Caution: Do not touch any mode that is not specifically described.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (4) Test pattern output mode". |
| 3 | [Test pattern output mode Screen] Use the numeric keys to enter the number of the test pattern to output and press the SET key. |
| 4 | Press the COPY SCREEN key. |
| 5 | [Copy Screen] <br> Select $11 \times 17$ size paper and press the START button to output the test pattern. |
| 6 | To output another test pattern, press the C button while pressing the P button and repeat steps 3 to 5 . |
| 7 | Press the RETURN key to end. |


| No. 1 | Overall halftone |
| :--- | :--- |
| Check item |  |
| - When density is set to 70 (halftone) |  |
| If there are white stripes, black stripes, or uneven density, determine whether the fault is with the |  |
| scanner or the printer. |  |
| - When density is set to 0 (white) |  |
| If the test pattern is gray background, determine whether the fault is with the scanner or the printer. |  |
| - When density is set to 255 (black) |  |
| If the density is light, determine whether the fault is with the scanner or the printer. |  |
| * The above density settings are typical values. See [18] "Test pattern density setting" for more |  |
| information on density setting. |  |
| Test patterns |  |
| Density set to 70 |  |

$\left.\begin{array}{|l|l|}\hline \text { No. } 2 & \text { Gradation pattern } \\ \text { Check item } \\ \text { If the test pattern is gray background or the density is light, determine whether the fault is with the } \\ \text { processing system or with } \gamma \text { correction. If the copy image is abnormal despite this test pattern being } \\ \text { normal, either the image processing system or the scanner system is abnormal. }\end{array}\right]$

## No. 3 Gradation pattern

## Check item

If the test pattern is abnormal, check whether the two lasers are emitting light normally.

## Test patterns



## No. 5 <br> Check item

Gradation pattern

If the test pattern is abnormal, check whether the two laser outputs are uniform.

## Test patterns



| No.11 Beam misalignment check |
| :---: | :---: | :---: |
| Check item the test pattern is abnormal, check to see if position correction of the two laser beams is normal. |
| Test patterns |

No. 16 Linearity evaluation pattern

## Check item

Use this check pattern to determine whether the fault is with the scanner or the printer. The printer horizontal magnification, vertical magnification, tilt, and leading edge timing and etc, can be checked. If the copy image is defective despite no abnormality in the test pattern, the scanner is at fault.

## Test patterns



## [18] Test pattern density setting

Setting the test pattern density.
Select " (5) Test pattern density setting" in the Adjustment mode menu Screen to display the Test pattern density setting Screen.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " (5) Test pattern density setting". |
| 3 | [Test pattern density Screen] <br> Use the numeric keys to enter the number of the test pattern to output and press the SET key. <br> Setting range: 0 to 255 |
| 4 | Press the COPY SCREEN key. |
| 5 | Press the START button to output a test pattern. |
| 6 | To output another test pattern, press the C button while pressing the P button and repeat steps 3 to 5 . |
| 7 | Press the RETURN key to end. |

## [19] Finisher adjustment

Adjusting the finisher, cover sheet tray, and puncher.

1. Select " 6 Finisher adjustment" on the Adjustment mode menu Screen to display the Finisher adjustment mode menu Screen.
2. Finisher adjustment items are as follows:
(1) Stitch \& Fold stopper adj.
(2) Fold stopper adjustment
(3) Cover sheet tray size adj.
(4) Punch adjustment (in the case of the $7255 / 7272$ )
(5) Punch adjustment (in the case of the 7155/7165)
(5) Z-fold position adjustment (in the case of the 7255/7272)
(6) Z-fold position adjustment (in the case of the 7155/7165)
3. Three-Fold position adjustment (in the case of the 7255/7272)
(7) Three-Fold position adjustment (in the case of the 7155/7165)
(7) 2 positions staple pitch adjustment (in the case of the 7255/7272)
4. 2 positions staple pitch adjustment (in the case of the 7155/7165)
5. Press the number key corresponding to the item to be adjusted.
6. The adjustment screen for the selected adjustment item appears.
7. After adjustment completes, return to the Finisher adjustment mode menu Screen.
8. Press the RETURN key of the Finisher adjustment menu to return to the Adjustment mode menu Screen.

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## 1. Stitch and fold stopper adjustment (FS210 only)

Adjusting the stapling position when stitch and fold mode.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 6 Finisher adjustment". |
| 3 | [Finisher adjustment mode menu Screen] <br> Press " 1 Stitch and fold stopper adj." |
| 4 | [Stitch and Fold stopper adj. Screen] Press the COPY SCREEN key. |
| 5 | Set paper in the tray, set originals on RADF, and press the START button. |
| 6 | Check the paper center and stapling position. <br> Specification: $\pm 1 \mathrm{~mm}$ |
| 7 | If the stapling position is not within specification, press the C button while pressing the P button. |
| 8 | [Stitch and Fold stopper adj. Screen] Press the NEXT or BACK key to select a desired paper size. |
| 9 | Enter a value with numeric keys and press the SET key. <br> Setting range: - 128 to +127 <br> 1 step $=0.1 \mathrm{~mm}$ <br> (in the case of the $7155 / 7165$ ) <br> 1 step $=0.15 \mathrm{~mm}$ <br> (in the case of the 7255/7272) |
| 10 | Repeat steps 4-9 until the stapling position is within specification. |
| 11 | Press the RETURN key to return to the Finisher adjustment mode menu Screen. |

2. Folding stopper adjustment (FS-210 only) Adjusting the folding position when stitch and fold or folding mode.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 6 Finisher adjustment". |
| 3 | [Finisher adjustment mode menu Screen] <br> Press " 2) Fold stopper adjustment". |
| 4 | [Fold stopper adjustment Screen] Press the COPY SCREEN key. |
| 5 | Set paper in the tray, set originals on RADF, and press the START button. |
| 6 | Check the paper center and folding posi tion. <br> Specification: $\pm 1 \mathrm{~mm}$ |
| 7 | If the folding position is not within spec ification, press the C button while press ing the P button. |
| 8 | [Fold stopper adjustment Screen] Press the NEXT or BACK key to select a desired paper size. |
| 9 | Enter a value with numeric keys and press the SET key. <br> Setting range: -128 to +127 <br> 1 step $=0.1 \mathrm{~mm}$ <br> (in the case of the $7155 / 7165$ ) <br> 1 step $=0.15 \mathrm{~mm}$ <br> (in the case of the $7255 / 7272$ ) |
| 10 | Repeat steps 4-9 until the folding position is within specification. |
| 11 | Press the RETURN key to return to the Finisher adjustment mode menu Screen. |


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## 3. Cover sheet tray size adjustment

 (PI-110 only)This adjustment should be performed when the cover sheet tray size cannot be detected properly and when centring adjustment for cover sheet tray is performed.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 6 Finisher adjustment". |
| 3 | [Finisher adjustment mode menu Screen] <br> Press " (3) Cover sheet tray size adjustment". |
| 4 | [Cover sheet tray size adj. Screen] Press NEXT or BACK key to select the tray to be adjusted. |
| 5 | Set a $8.5 \times 11 \mathrm{R}$ size paper on the cover sheet tray (upper/lower), press the Start key on the LCD. A complete message appears on the screen. |
| 6 | Press the RETURN key to return to the Finisher adjustment mode menu Screen. |

4. Punch adjustment (PK-110/120, PZ only)

This adjusts the punch vertical positions, punch horizontal positions, and punch registration loop amount.

1. Select " (5) Punch adjustment" on the Finisher adjustment mode menu Screen to display the Punch adjustment menu Screen.
2. Punch adjustment includes the following items:
(1) Punch kit vertical position adjustment (PK-120)
(2) Punch kit horizontal position adjustment (PK-110/120)
(3) Punch unit vertical position adjustment (PZ)
(4) Punch unit horizontal position adjustment (PZ)
5) Punch regist loop adjustment
3. Press the number key corresponding to the item to be adjusted. The adjustment screen for the selected adjustment item appears.
4. After adjustment completes, return to the Punch adjustment menu Screen.
5. Press the RETURN key of the Punch adjustment menu to return to the Finisher adjustment mode menu Screen.

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(1) Punch vertical position adjustment (PK-120, PZ only)
Adjusting the punch vertical position.

(2) Punch horizontal position adjustment (PK110/120, PZ only)
Adjusting the punch horizontal position.


6 nal on RADF, and then press the START button.
Check the paper center and the position of punch holes.
Specification (Length between the edge of paper and the center of punch hole):
10.5 mm ( 2 holes/4 holes/swedish

4 holes), 9.5 mm ( 3 holes/inch 2 holes)
If the punch horizontal position is not
8 appropriate, press the C button while pressing down the P button.
[Punch Horizontal position adj. Screen]
Press the NEXT or BACK key to select a desired paper size.
Enter a value with numeric keys and
press the SET key.
Setting range: -50 to +50
1 step= 0.1 mm

Punch adjustment menu Screen.
(3) Punch regist loop adjustment

Adjusting the registration loop amount for the reversed paper exit, the ADU paper exit (straight exit) and cover sheet upper/lower.

| Step | Operation |
| :---: | :---: |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] Press " 6) Finisher adjustment". |
| 3 | [Finisher adjustment mode menu Screen] <br> Press " 5 Punch adjustment". |
| 4 | [Punch adjustment mode Screen] Press" (5) Punch registloop adj." in the case of the 7155/7165, and press <br> " 4] Punch regist loop adj." in the case of the 7255/7272. |
| 5 | Press " (1) Punch regist loop adj. (main body)" or " 2] Punch regist loop adj. (PI)". |
| 6 | [Punch Regist Loop adj. Screen] Press the NEXT or BACK key to select the item to be adjusted. The screen changes as follows; Reverse Paper eject $\rightarrow$ ADUPaper eject or Cover sheet Upper $\rightarrow$ Cover sheet Lower. |
| 7 | Press the COPYSCREEN key. |
| 8 | Press the START button to make a copy. |
| 9 | Check the punch registration loop amount. |
| 10 | If the punch registration loop amount is not appropriate, press the C button while pressing the P button. |
| 11 | [Punch Regist Loop Adj. Screen] Enter a value with numeric keys and press the SET key. <br> Setting range: -20 to +20 1 step $=0.8 \mathrm{~mm}$ |
| 12 | Repeat steps 6-11 until the punch registration loop amount is within the specification. |
| 13 | Press the RETURN key to return to the Punch adjustment menu Screen. |

## 5. 1st Z-folding position adjustment (PZ only)

Adjusting the positions at which the 1st Z-folding is performed.


4 Press " (1) 1st folding position adjustment".
[1st Z-folding position adjustment
5 Screen]
Press the COPY SCREEN key.

6 | Load papers in the tray, place the origi- |
| :--- | :--- |
| nal on RADF, and then press the START |
| button. | button.

| 7 | Check the 1st Z-folding position. |  |  |
| :---: | :---: | :---: | :---: |
|  | Specification |  |  |
|  | $\begin{gathered} \mathrm{L} 1 \\ (\mathrm{~mm}) \end{gathered}$ | $11 \times 17$ | 108 |
|  |  | A3 | 105 |
|  |  | 8 K | 97 |
|  |  | B4 | 91 |
|  |  | $8.5 \times 14$ |  |


| 8 | If the 1st Z-folding position is not appro- <br> priate, press the C button while pressing <br> the P button. |
| :---: | :--- |
| 9 | $[1$ st Z-folding position adjustment <br> Screen] <br> Enter a value with numeric keys and <br> press the <br> Sett <br> Seting range: - 128 to +127 <br> 1 step $=0.1 \mathrm{~mm}$ |
| 10 | Repeat steps 5-9 until the 1st Z-folding <br> position is appropriate. |
| 11 | Press the <br> the Z-folding position adjustment menu <br> Screen. |


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## 6. 2nd Z-folding position adjustment (PZ only)

Adjusting the positions at which the 2nd Z-folding is performed.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 36 mode. |
| 2 | [Adjustment mode menu Screen] <br> Press " 6] Finisher adjustment". |
| 4 | [Finisher adjustment mode menu <br> Screen] |
| 3 | Press " 6] Z-folding position adjust- <br> ment" in the case of the 7155/7165, and <br> press " 5] Z-folding position adjust- <br> ment" in the case of the 7255/7272. |

[Z-folding position adjustment menu Screen]
Press " (2) 2nd folding position adjustment".
[2nd Z-folding position adjustment
5 Screen]
Press the COPY SCREEN key.
Load papers in the tray, place the origi-
6
nal on RADF, and then press the START button.


Repeat steps 5-9 until the 2nd Z-folding position is appropriate. Press the RETURN key to return to the Z-folding position adjustment menu Screen.

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7. Three-folding adjustment (FS-210 only)

Adjusting the folding positions during the threefolded copy.

| Step | Operation |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Enter the 36 mode. |  |  |  |
| 2 | [Adjustment mode menu Screen] Press " 6) Finisher adjustment". |  |  |  |
| 3 | [Finisher Adjustment mode Menu Screen] <br> Press " 7 Three-folded positions adjustment" in the case of the 7155/7165, and press " 6) Three-folded positions adjustment" in the case of the 7255/7272. |  |  |  |
| 4 | [Three-Folding adjustment Screen] Press the COPY SCREEN key. |  |  |  |
| 5 | Load papers in the tray, place the original on RADF, and then press the START button. |  |  |  |
|  | Check the three-folded positions of paper. |  |  |  |
|  | $\begin{array}{\|c\|} \hline \text { Folded } \\ \text { positions } \end{array}$ | Reference value |  | Specification |
|  |  | A4R | $8.5 \times 11 \mathrm{R}$ |  |
|  | a | 93 mm | 86.4 mm | $\pm 2 \mathrm{~mm}$ |
|  | b | 102 mm | 97 mm | $\pm 2 \mathrm{~mm}$ |
|  | c | 102mm | 97 mm | $\pm 2 \mathrm{~mm}$ |
| 7 | If the folded positions are not within the specification, press the C button while pressing the P button. |  |  |  |
| 8 | Press the NEXT or BACK key to select the item to be adjusted. |  |  |  |
| 9 | Enter a value with numeric keys and press the SET key. <br> Setting range: -128 to +127 1 step $=0.1 \mathrm{~mm}$ |  |  |  |
| 10 | Repeat steps 4-9 until the folded positions are within the specification. |  |  |  |
| 11 | Press the RETURN key to return to the Finisher adjustment mode menu Screen. |  |  |  |

8. 2 positions staple pitch adjustment

Adjusting the pitch of the 2 positions staple.

| ep | Operation |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Enter the 36 mode. |  |  |  |
| 2 | [Adjustment mode menu Screen] Press " 6) Finisher adjustment". |  |  |  |
| 3 | [Finisher Adjustment mode Menu Screen] <br> Press " 8) 2 positions staple pitch adjustment" in the case of the $7155 / 7165$, and press " 7) 2 positions staple pitch adjustment" in the case of the 7255/ 7272. |  |  |  |
| 4 | [2 positions staple pitch adjustment Screen] |  |  |  |
| 5 | Load papers in the tray, place the original on RADF, and then press the START button. |  |  |  |
| 6 |  |  |  |  |
|  |  | Refer | valu |  |
|  |  | A4R | $8.5 \times 11 \mathrm{R}$ |  |
|  |  | 93 mm | 86.4 |  |
|  |  | 102m | 97 m | $\pm$ |
|  |  | 102 mm | 97 mm | $\pm 2$ |
| 7 | When changing the dimension A , press |  |  |  |
| 8 | [2 position Screen] <br> Enter a va press the Setting ran 1 step=1m | s staple <br> ue with n <br> SET <br> ge: 120 | pitch adj <br> meric key y. 160 | ustment <br> s and |
| 9 | Repeat steps 4 to 8 until the dimension $A$ is improved. |  |  |  |
| 11 | Press the RETURN key to return to the Finisher adjustment mode menu Screen. |  |  |  |


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## [20] List Output Mode

Outputting various data.

1. Select " 7 List output mode" in the Adjustment mode menu Screen to display the List output mode menu Screen.
2. List output mode menu consists of the following:
(1) Machine management list 1
(2) Adjustment data list
(2) (3) Pixel ratio data list
(4) Machine management list 2
(5) Parameter list

6 Memory dump list
(7) Font pattern
3. Press the number key corresponding to the item to output.
The output setting screen for the selected item appears.
4. After output completes, return to the List output mode menu Screen.
5. Press the RETURN key in the List output mode menu Screen to return to Adjustment mode menu Screen.

Note: List output screen is not displayed for 4
Machine management list 2 and subsequent items unless address $30-1$ is set to
1 with (1) Software DIPSW setting in 25 mode.

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## 47 MODE

## [1] 47 Mode / Multi Mode Setting Method

1. 47 Mode

This mode provides self-diagnostic functions (input/output check function) to check and adjust various signals and loads.
2. $\mathbf{4 7}$ mode operation
(1) Starting 47 mode
a. Turn off the SW2 (sub power).
b. Turn the SW2 back on while holding down 4 and 7 of the copy quantity button.
c. Check that the 47 mode is started when message "I/O check mode" appears in the first row of the message area.
(2) Input/output check
a. Use the copy quantity button to enter the code (Refer to the I/O check code list.) for the desired signal sources (such as sensors).
b. The entered code appears enclosed in $<>$ in the second row of the message area.
c. The numbers are shifted left as they are displayed.
d. Check the status of the signal displayed as H or L after "IN:" in the second row of the message display area.

Caution: H and L indicate the level of the signal input to PRCB (printer control board). Note the relationship between the status of the input signal source and the message display.
(3) Output check
a. Use the copy quantity button to enter the code (Refer to the I/O check code list.) for the desired output load.
b. Press the Start button.

Depending on the output, a load will be activated or a signal will be output.

| Start button | Code | Description |
| :---: | :---: | :---: |
| Before pressing <br> indication | Input | Input signal level |
| After pressing | Output | Output load opera- <br> tion/signal |

(4) Ending 47 mode
a. Press the stop button to cancel the operation.
b. Turn off the main switch to exit the 47 mode.

| Step | Operation |
| :---: | :--- |
| 1 | Turn on the SW2 (sub power) while hold- <br> ing down 4 and 7 of the copy quantity <br> button. |
| 2 | [I/O check Screen] <br> Use the copy quantity button to enter the <br> code. |
| 3 | Check the input signal check result dis- <br> played after "IN:" in the second row of <br> the message area. |
| 4 | To perform the output check, press the <br> Start button to check the output load. |
| 5 | Press the Stop button to end output <br> check. |
| 6 | To perform other checks, enter a new <br> code using the copy quantity button. |
| 7 | Turn off the main switch to exit the 47 <br> mode. |

Note1: No data appears on the second row of the message area when 47 mode is entered. Message appears when a number is entered.

Note2: Simply enter a new code to switch to another code.

Note3: A newly entered number is written over the previously entered number.

## 3. Multi mode

This machine features Multi modes amongst the 47 Mode functions.
This enables multiple I/O checks using a single I/ O check code.
4. Multi mode operation method

Start the 47 mode and proceed as follows:
(1) To check the input
a. Using the copy quantity button, enter the check code for the desired I/O.
b. The 47 mode code appears enclosed in $<>$ in the second row of the message area.
c. Press the $P$ button.
d. Enter the desired multi number using the copy quantity button. (Refer to the multi mode list.)
e. The multi number will be displayed enclosed in <>, following the 47 mode code and "- ".

$$
\begin{aligned}
& \text { I/O check mode } \\
& \text { < 10-01 > IN: -- OUT: -- }
\end{aligned}
$$

f. Press the P button.
g. Check the status of the signal displayed as H or L after "IN:" in the second row of the message display area.
(2) To check the output
a. Press the START button.
b. Press the STOP button after checking the output.
(3) Ending multi mode
a. Turn off the main switch to exit the 47 mode (multi mode).

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 47 mode. |
| 2 | [I/O check Screen] <br> Use the copy quantity button and enter <br> the code. |
| 3 | Press the P button. |
| 4 | Enter the multi number using the copy <br> quantity button. |
| 5 | Press the P button. |
| 6 | Check the input signal check result dis- <br> played after "IN:" in the second row of <br> the message area. |
| 7 | To perform the output check, press the <br> Start button to check the output load. |
| 8 | Press the STOP button to end the output <br> check. |
| 9 | Turn off the main switch to exit the 47 <br> mode. |

Note1: To check another multi number in the same code, press the $P$ button after completing step 8. And enter another multi number. A newly entered number is written over the previously entered number.

Note2: To return to the normal 47 mode, press the STOP button while holding down the P button after completing step 8.

## [2] Adjustment Data Display

Displaying a list of machine adjustment values (factory-set values and current values).
No adjustment (data value change) can be made in this mode.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 47 mode. |
| 2 | $[/ / 0$ check Screen] <br> Enter 94 with numeric keys. <br> Make sure 94 is displayed in the mes- <br> sage display field. |
| 3 | Press the Start button. |
| 4 | [Adjustment data display Screen] <br> Press the <br> a desired adjustment item. |
| 5 | Press the <br> O check mode screen. |

## [3] Hard Disk Check

This adjustment is to be performed when checking the total capacity and remaining capacity of the optional hard disk and when error codes related to the hard disk occur.

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 47 mode. |
| 2 | Enter 99 with numeric keys. |
|  | (1)Checking the total capacity of the <br> hard disk: Press the P button and <br> enter 1 with a numeric key. Make <br> sure 99-01 is displayed in the mes- <br> sage display field. <br> 3(2)Checking the remaining capacity of <br> the hard disk: <br> Press the P button and enter 2 with <br> a numeric key. Make sure 99-02 is <br> displayed in the message display <br> field. <br> (3)Checking and recovering bad sec- <br> tors on the hard disk: <br> Press the P button and enter 3 with <br> a numeric key. Make sure 99-03 is <br> displayed in the message display <br> field. <br> 4 <br> Press the START button. |

(1) When the total capacity of the hard disk is checked:
The total capacity of the hard disk is displayed after "OUT:" in the message display field.
(2) When the remaining capacity of the hard disk is checked:
The remaining capacity of the hard disk is displayed after "OUT:" in the message display field.
(3) When bad sectors on the hard disk
are checked and recovered:
"NOW" is displayed after "OUT:" in the message display field and bad sector check and recovery start. Several minutes later, "OK" is displayed in the case of normal termination, "NG" is displayed in the case of abnormal termination.
When "NG" is displayed, retry bad sector check and recovery. If "NG" is displayed again, replace the hard disk.
Note1: Once the bad sector check and recovery procedure start, it can not be canceled. (The STOP button and mode change key are ineffective.)
Note2: The hard disk is weak against vibration and shock. When moving the copy machine, be sure to remove the hard disk in advance.


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| Classification |  | Code | Symbol | Multi mode | Name | Display and Signal Source |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | H |  |  |  | L |
|  |  |  | 030 | PS61 | 1 | Scanner home position detection signal | OFF | ON |
|  |  | 031 | PS63 | 1 | APS sensor 1 detection signal |  |  |
|  |  | PS64 | 2 | APS sensor 2 detection signal |  |  |  |
|  |  | PS65 | 3 | APS sensor 3 detection signal |  |  |  |
|  |  | - | 4 | - |  |  |  |
|  |  | - | 5 | - |  |  |  |
|  |  | - | 6 | - |  |  |  |
|  |  | - | 7 |  |  |  |  |
|  |  | PS51 | 8 | APS timing detection signal | Close | Open |  |  |
| Properfunc-tions |  |  | 051 | SW100 |  | LCT tray down SW | ON | OFF |
|  |  | 052 | C(K) |  | Key counter | Provided | $\begin{gathered} \text { Not } \\ \text { provided } \end{gathered}$ |  |
|  |  | 054 | PS52 | 1 | Transfer/separation PS/F detection signal (7255/7272 only) | ON | OFF |  |
|  |  | PS53 | 2 | Transfer/separation PS/R detection signal (7255/7272 only) |  |  |  |  |
|  |  |  | 060 | PS310 | 1 | Original size detection signal 1 | ON | OFF |
|  |  | PS309 |  | 2 | Original size detection signal2 |  |  |  |
|  |  | PS304 |  | 3 | Original registration detection signal 1 |  |  |  |
|  |  | PS305 |  | 4 | Original registration detection signal 2 |  |  |  |
|  |  | PS306 |  | 5 | Original conveyance detection signal |  |  |  |
|  |  | PS303 |  | 6 | Original ejection detection signal |  |  |  |
|  |  | PS301 |  | 7 | Last original detection signal |  |  |  |
|  |  | PS302 |  | 8 | Original setting detection signal |  |  |  |
|  |  | MS301 |  | 9 | Cover open/close MS detection signal | OFF | ON |  |
|  |  | PS311 |  | 10 | ADF open/close detection signal | ON | OFF |  |
|  |  | PS307 |  | 11 | Original skew detection signal/F |  |  |  |
|  |  | PS308 |  | 12 | Original skew detection signal/R |  |  |  |
| $\begin{gathered} \text { FS-110/ } \\ 210 \end{gathered}$ |  | 076 | PS701 | 0 | Sub tray paper exit detection signal | OFF | ON |  |
|  |  | PS702 | 1 | Tray upper limit detection signal |  | OFF |  |  |
|  |  | PS703 | 2 | Tray lower limit detection signal | ON | OFF |  |  |
|  |  | PS704 | 3 | FNS entrance detection signal | OFF | ON |  |  |
|  |  | PS705 | 4 | Stacker entrance detection signal | ON | OFF |  |  |
|  |  | PS706 | 5 | Main tray paper exit detection signal | ON | OFF |  |  |
|  |  | PS707 | 6 | Stapler paper exit upper limit detection signal | OFF | ON |  |  |
|  |  | PS708 | 7 | Alignment HP/U detection signal | ON | OFF |  |  |
|  |  | PS709 | 8 | Paper exit belt HP detection signal |  |  |  |  |
|  |  | PS713 | 9 | Stapler rotation HP detection signal |  |  |  |  |
|  |  | PS711 | 10 | Stapler movement HP detection signal |  |  |  |  |
|  |  | PS712 | 11 | Paper exit HP detection signal |  |  |  |  |
|  |  | PS714 | 12 | Clincher rotation HP detection signal |  |  |  |  |
|  |  | PS715 | 13 | Counter reset HP detection signal |  |  |  |  |
|  |  | PS718 | 14 | Shift HP detection signal |  |  |  |  |
|  |  | PS720 | 15 | Stacker no paper detection signal |  |  |  |  |
|  |  | SW702 | 16 | Staple/R SW detection signal | OFF | ON |  |  |
|  |  | PS730 | 17 | Stapler HP/R detection signal |  |  |  |  |
|  |  | SW701 | 18 | Cartridge/R detection signal |  |  |  |  |
|  |  | M710 | 19 | Clincher /R detection signal | $\begin{aligned} & \text { Other } \\ & \text { than } \\ & \text { start } \end{aligned}$ | Start |  |  |
|  |  | - | 20 | - | - | - |  |  |


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| Classification | Code | Symbol | Multi mode | Name | Display and Signal Source |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | H | L |
| N | 076 | - | 62 | Paper edge PS (side edge sensor 5) | No | With |
|  |  | PS1 | 63 | Passage PS | Paper | Paper |
| $\bar{\square}$ |  | PS202 | 64 | No sheet /U detection signal |  |  |
|  |  | PS203 | 65 | Sheet setting /U detection signal | OFF | ON |
|  |  | PS205 | 66 | Tray lower limit/J detection signal |  |  |
|  |  | PS204 | 67 | Tray upper limit/U detection signal | ON | OFF |
|  |  |  | 68 | Pl start/stop detection signal |  |  |
|  |  |  | 69 | PI punch SW detection signal |  |  |
|  |  |  | 70 | PI mode SW detection signal |  |  |
|  |  | MS201 | 71 | Plinterlock MS detection signal | OFF | ON |
|  |  | PS207 | 72 | No sheet/L detection signal |  |  |
|  |  | PS208 | 73 | Sheet setting /L detection signal |  |  |
|  |  | PS210 | 74 | Tray lower limit /L detection signal |  |  |
|  |  | PS209 | 75 | Tray upper limit /L detection signal | ON | OFF |
| হ |  | - | 76 | - | - |  |
|  |  | PS212 | 77 | Sheet size/L detection signal | OFF | ON |
|  |  | - | 78 | - | - | - |
|  |  | PI | 79 | PI connection signal | $\stackrel{\text { Not }}{\text { connect }}$ | Connect |
|  |  | - | 80 | - |  |  |
|  |  | - | 81 | - | - | - |
|  |  | - | 82 | - |  |  |
| 는 |  | PS801 | 83 | Punch HP detection signal | ON | OFF |
|  |  | - | 84 | - |  |  |
|  |  | - | 85 | - |  |  |
|  |  | PS802 | 86 | Punch scraps full detection signal | OFF | ON |
|  |  | PS804 | 87 | Punch scraps box detection signal | Set | Other than set |
| $\frac{\stackrel{\rightharpoonup}{\mathrm{N}}}{\frac{1}{2}}$ |  | ${ }^{-}$ | 88 | Paper edge PS (side edge sensor 1) | No Paper | With Paper |
|  |  |  | 89 | Paper edge PS (side edge sensor 2) |  |  |
|  |  |  | 90 | Paper edge PS (side edge sensor 3) |  |  |
|  |  |  | 91 | Paper edge PS (side edge sensor 4) |  |  |
|  |  |  | 92 | Paper edge PS (side edge sensor 5) |  |  |
|  |  | PS803 | 93 | Punch shift HP | ON | OFF |
|  |  | - | 94 | PK-120 detection | OFF |  |
| $\begin{aligned} & \underset{\Gamma}{\bar{j}} \end{aligned}$ |  | PS1 | 0 | Sub-tray paper exit |  |  |
|  |  | PS2 | 1 | Tray upper limit |  |  |
|  |  | PS3 | 2 | Tray lower limit |  |  |
|  |  | PS4 | 3 | FIN entrance passage |  |  |
|  |  | PS5 | 4 | Stacker conveyance passage |  |  |
|  |  | PS6 | 5 | Paper exit 1 |  |  |
|  |  | PS7 | 6 | Staple paper exit upper limit |  |  |
|  |  | PS8 | 7 | Alignment plate/upper HP OFF ON |  | ON |
|  |  | PS9 | 8 | Paper exit belt HP |  |  |
|  |  | PS10 | 9 | Paper exit 2 |  |  |
|  |  | PS11 | 10 | Stapler movement HP |  |  |
|  |  | PS12 | 11 | Paper exit opening |  |  |
|  |  | PS13 | 12 | Entrance paper detection |  |  |
|  |  | PS14 | 13 | Stapler rotation HP |  |  |
|  |  | PS15 | 14 | Tray no paper detection |  |  |
|  |  | PS18 | 15 | Roller shift HP |  |  |


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| Classification | Code | Symbol | Multi mode | Name | Display and Signal Source |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | H | L |
| $\underset{\dot{山}}{\stackrel{\rightharpoonup}{j}}$ | 076 | PS20 | 16 | Stacker no paper detection | OFF | ON |
|  |  | - | 17 | - |  |  |
|  |  | - | 18 | - |  |  |
|  |  | - | 19 | - |  |  |
|  |  | - | 20 | - |  |  |
|  |  | - | 21 | - |  |  |
|  |  | - | 22 | - |  |  |
|  |  | - | 23 | - |  |  |
|  |  | - | 24 | - |  |  |
|  |  | - | 25 | - |  |  |
|  |  | - | 26 | - |  |  |
|  |  | - | 27 | - | - | - |
|  |  | - | 28 | - |  |  |
|  |  | - | 29 | - |  |  |
|  |  | - | 30 | - |  |  |
|  |  | FM1,2,3 | 31 | Motor lock signal |  |  |
|  |  | M1 | 32 | Motor lock signal | Lock | Orerat- |
|  |  | M7 | 33 | Motor lock signal |  |  |
|  |  | - | 34 |  |  |  |
|  |  | - | 35 |  | - | - |
|  |  | - | 36 |  |  |  |
|  |  | - | 37 | Folding unit | No unit | With unit |
|  |  | - | 38 |  | - | - |
|  |  | - | 39 | Pl-108 | No unit | With unit |
|  |  | - | 40 | Stapler/R Cartridge | 50 sheets | 100 sheets |
|  |  | PS31 | 41 | Stapler/R HP Signal |  |  |
|  |  | PS40 | 42 | Stapler/R staple absent signal | OFF | ON |
|  |  | - | 43 | Stapler (R) Ready signal | Busy | Ready |
|  |  | - | 44 | Stapler (R) Busy signal | Ready | Busy |
|  |  | - | 45 | Stapler (R) Clear-request signal | Normal | Demand |
|  |  | - | 46 | - |  |  |
|  |  | - | 47 | - |  |  |
|  |  | - | 48 | Stapler/F Cartridge | 50 sheets | 100 sheets |
|  |  | PS34 | 49 | Stapler/FHP signal |  |  |
|  |  | PS37 | 50 | Stapler/F staple absent signal | OFF | ON |
|  |  | - | 51 | Stapler (F) Ready signal | Busy | Ready |
|  |  | - | 52 | Stapler (F) Busy signal | Ready | Busy |
|  |  | - | 53 | Stapler (F) Clear-demand signal | Normal | Demand |
|  |  | - | 54 |  |  |  |
|  |  | - | 55 |  |  |  |
|  |  | - | 56 |  |  |  |
|  |  | - | 57 |  |  |  |
|  |  | - | 58 |  | - | - |
|  |  | - | 59 |  |  |  |
|  |  | - | 60 | - |  |  |
|  |  | - | 61 | - |  |  |
|  |  | - | 62 | - |  |  |
|  |  | PS50 | 63 | Sub-tray full detection | OFF | ON |
|  |  | PS29 | 64 | Folding full | - | - |
|  |  | - | 65 | - | With paper | No paper |
|  |  | - | 66 | - | - | - |


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| Classi- | Code | Symbol | Multi | Name | Display Signal | y and Source |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | H | L |
| $\underset{\dot{U}}{\stackrel{\rightharpoonup}{\dot{b}}}$ | 076 | MS1 | 67 | Interlock detection signal | Open | Close |
|  |  | - | 68 | - |  |  |
|  |  | - | 69 | - |  |  |
|  |  | - | 70 | - |  |  |
|  |  | - | 71 | - |  |  |
|  |  | - | 72 | - |  |  |
|  |  | - | 73 | - |  |  |
|  |  | - | 74 | - |  |  |
|  |  | - | 75 |  |  |  |
|  |  | M4 | 76 | Punch motor error detection |  |  |
|  |  | MS2 | 76 |  |  |  |
|  |  | MS | 77 | Front door MS |  |  |
|  |  | PS5 | 78 | Punch HP |  |  |
|  |  | PS3 | 79 | 1st foloding stopper HP | - | - |
|  |  | - | 80 | Paper edge PS (leading/trailing/side edge sensor 1) |  |  |
|  |  | - | 81 | Paper edge PS (side edge sensor 2) |  |  |
|  |  | - | 82 | Paper edge PS (side edge sensor 3) |  |  |
|  |  | - | 83 | Paper edge PS (side edge sensor 4) |  |  |
|  |  | - | 84 | Paper edge PS (side edge sensor 5) |  |  |
|  |  | PS4 | 85 | Punch shift HP |  |  |
|  |  | PS1 | 86 | Passage |  |  |
|  |  | PS2 | 87 | 2nd foloding stopper HP |  |  |
|  |  | - | 88 | - |  |  |
|  |  | - | 89 | - |  |  |
|  |  | PS8 | 90 | Exit |  |  |
|  |  |  | 91 | - |  |  |
| $\begin{aligned} & \overline{\bar{\prime}} \\ & \stackrel{\bar{\prime}}{\omega} \end{aligned}$ |  | PS701 | 0 | Conveyance paper detection signal | No paper | With paper |
|  |  | PS703 | 1 | Tray upper limit detection signal | ON | OFF |
|  |  | PS704 | 2 | Tray lower limit detection signal | OFF | ON |
|  |  | PS702 | 3 | Shift HP detection signal | OFF | ON |
|  |  | SW701 | 4 | Conveyance cover detection signal | Open | Close |
|  |  | - | 5 | - |  |  |
|  |  | - | 6 |  |  |  |
| 安 | 080 | PS45 | 1 | ADU reverse detection signal | ON | OFF |
|  |  | PS48 | 2 | ADU conveyance detection signal/2 |  |  |
|  |  | PS49 | 3 | ADU deceleration detection signal |  |  |
|  |  | PS50 | 4 | ADU pre-registration detection signal |  |  |
|  |  | PS47 | 5 | ADU handle detection signal |  |  |
|  |  | PS41 | 6 | ADU conveyance detection signal (7155/71650nly) |  |  |


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## [5] Output checklist



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*Caution:When the START key is pressed, "Watch input?" YES and NO appears. When YES or (NO) is selected for each code, the following operation is performed (7155/7165 only):
*1 YES Turns ON the exposure lamp and scanner cooling fan.
NO. Turns ON the exposure lamp for 10 minutes.
*2 YES Performs HP search and scanner to-and-fro operations.
NO. Moves the scanner 10 mm to the right.
*3 YES Turns ON the polygon motor and write unit cooling fan.
NO Turns ON the polygon motor for 30 seconds.
*4 YES Performs HP search and shading operations.
NO) Moves the scanner 10 mm to the right.'

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $1-96-2$ | ADDITION |

## OTHER ADJUSTMENT

## [1] Centring Adjustment

Caution: Centring adjustment need not be performed normally because paper inclination is detected in the second paper feed section and original image is corrected in the image processing unit to fit an inclined paper. Centring adjustment is required only when the detected paper inclination is not within the automatic image correction range.

1. Tool

- Screwdriver (Phillips)

2. Tray $1 / 2 / 3$ centring adjustment (7155/7165)
3. Tray $3 / 4$ centring adjustment (7255/7272)

4. Tray $\mathbf{1 / 2}$ centring adjustment (7255/7272)


4 a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Draw out the tray. |
| 2 | Loosen the two screws at the centre of <br> the tray. (7155/7165 : tray $1 / 2 / 3,7255 /$ <br> 7272 : tray $3 / 4)$ <br> Loosen the ten screws at the centre of <br> the tray. (7255/7272 : tray $1 / 2)$ |
| 3 | Slide the guide plate to adjust the centre <br> position. |
| 4 | Tighten the two screws securely. (7155/ <br> $7165:$ tray $1 / 2 / 3,7255 / 7272$ : tray $3 / 4)$ <br> Tighten the ten screws securely. (7255/ <br> 7272 : tray $1 / 2)$ |
| 5 | Insert the tray and make a copy to check <br> the result. |
| 6 | Perform steps $1-5$ repeatedly until mis- <br> centring is included in the automatic <br> adjustment range $\pm 3 \mathrm{~mm})$. |
| 7 | Perform the tray adjustment in 36 mode. |

Caution: Disable the mis-centering correction function by setting the dip switch 12-3 and confirm it (Enter 1 to set to ON). Confirm it using the internal pattern No. 16


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3. LCT tray centring adjustment

a. Adjustment method

| Step | Operation |
| :---: | :---: |
| 1 | Raise the up/down plate. |
| 2 | Open the top cover. |
| 3 | Remove five screws to detach the side cover (right). |
| 4 | Loosen two screws on the upper part of LCT to slide the guide plates (front/rear) the same amount in the same direction. |
| 5 | Secure the guide plates by tightening two screws firmly. |
| 6 | Loosen three screws to slide the centre positioning brackets the same amount in the same direction as you did for the guide plates (front/rear) in the step 4. |
| 7 | Secure the centre positioning brackets by tightening three screws firmly. |
| 8 | Put the LCT back into the original position and make a copy to check the result. |
| 9 | Perform steps 1-8 repeatedly until miscentering is included in the automatic adjustment range ( $\pm 3 \mathrm{~mm}$ ). |

Caution: Disable the mis-centering correction function by setting the dip switch 12-3 (Enter 1 to set ON) and confirm it. Confirm it using the test pattern No. 16 .

4. Setting the LCT Rear Guide (LT-412 only)

a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Open the top cover. |
| 2 | Press SW100 (LT tray down switch) to <br> lower the up/down plate to the bottom. |
| 3 | Loosen two screws at the top of the rear <br> guide and one screw at the bottom. |
| 4 | Setpaper on the up/down plate, alignthe <br> trailing edge of paper with the lower end <br> of the rear guide, then fasten the lower <br> screw. |
| 5 | Fasten the two upper screws temporarily <br> and move the up/down plate to the high- <br> est position. |
| 6 | Setpaper on the up/down plate, alignthe <br> trailing edge of paper with the upper end <br> of the rear guide, then tighten the two <br> upper screws finally. |

Reference: LCT tray size setting can be performed in the key operation mode by setting DIPSW21-1 to 1 in the 25 mode.
[2] Skew adjustment (Main body)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method


| Step | Operation |
| :---: | :--- |
| 1 | Make a copy to measure for skew. |
| 2 | Loosen the five screws securing the sec- <br> ond paper feed unit. |
| 3 | Rock the second paper feed unit to <br> adjust using the mark as a guide. |
| 4 | Retighten the five screws. |
| 5 | Make adjustments by repeating steps 2 <br> to 4 until the skew becomes within the <br> specified range. |

Specified range:Paper skew $\pm 5 \%$ or less (Paper skew in the paper feed direction)

## [3] Adjusting the LCT Paper Feed Roller Pressure (LT-412 only)

Caution: This adjustment is required when no paper feed occurs.

1. Tool

- Screwdriver (Phillips)

2. Adjustment method


| Step | Operation |
| :---: | :--- |
| 1 | Open the top cover. |
| 2 | Remove the spring. |
| 3 | Install a weight plate above the paper <br> feed rollers using the two screws. |
| 4 | Make a copy to check whether paper is <br> fed properly. |
| 5 | If paper is not fed properly, add another <br> weight plate and repeat steps 5 and 6. |
| 6 | Install the spring. |

Caution: Four weight plates come standard with the LCT, and can be installed up to six.

## [4] Paper up/down plate horizontal adjustment (LT-402/LT-412 only)

Caution: Up/down plate horizontal adjustment must be carried out when a paper feed jam occurs frequently or after replacement of the up/down wires of a tray.

1. Tool

- Screwdriver (Phillips)

2. LCT up/down plate horizontal adjustment of LT402

a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Raise the up/down plate. |
| 2 | Open the top cover. |
|  | Remove five screws to detach the side <br> cover (right). | cover (right).

3


Open the jam access door, then remove six screws to detach the front cover.


3. LCT up/down plate horizontal adjustment of LT412

a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Lift the up/down plate up. |
| 2 | Open the top cover. |
| 3 | Loosen the two screws and adjust the <br> position using an adjustment screw and <br> the mark so that the front and rear of the <br> up/down plate are at same height. |
| 4 | Fasten two screws securely |

[5] Skew adjustment (LT-402/LT-412 only)

Caution: Skew adjustment is required when the paper supplied from the current tray is different from the paper supplied from other trays in the way it is skewed. However, this adjustment has little effect because skew of paper supplied from all trays is corrected in the second paper feed unit.

1. Tool

- Screwdriver (Phillips)

2. LCT skew adjustment
a. Adjustment method (when all printed sheets are skewed)

b. Adjustment method (when some printed sheets are skewed irregularly)

| Step | Operation |
| :---: | :--- |
| 1 | Print a test pattern (No.16) in the contin- <br> uous copy mode to check for skew. |
| 2 | Remove the side cover (right). |
|  | Loosen the five screws securing the <br> guide plates (front and rear) and the cen- <br> tering positioning bracket temporarily. <br> Press the guide plates (front and rear) <br> against paper, then tighten the five <br> screws. |
| 3 |  |

Reference: The indicated size of each guide plate is about 2 mm wider than the size of regular paper. The 2 mm gap may cause paper skew depending on the paper type. To reduce this skew, press the guide plates (front and rear) against paper tightly.

## [6] Tray spring pressure adjustment

Caution: Tray spring pressure adjustment must be performed when no feed or double feed of paper occurs. Tray spring pressure may be affected by the type of paper used or the operating environment (under low temperature conditions, no feed of paper tends to occur. Under high temperature conditions, double feed of paper tends to occur). Excessive adjustment of tray spring pressure may exacerbate the problem. Take care.

1. Tool

- Screwdriver (Phillips)
- Flat-nose pliers

2. Tray $1 / 2 / 3$ spring pressure adjustment
a. Adjustment method


3. By-pass paper feed spring pressure adjustment

a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Remove the by-pass tray. |
| 2 | Remove two screws and detach the bot- <br> tom plate assembly. |


| 3 | Change the spring hooking position. <br> Weak: Double feed is prevented. <br> Strong: No feed is prevented. <br> Reference: The spring load changes <br> about 15\% each time the <br> spring is hooked in the next <br> slit. |
| :---: | :--- |
| 4 | Install the by-pass tray. |

4. LCT spring pressure adjustment

a. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Remove the LCT from the main body. |
| 2 | Change the spring hooking position. <br> Weak: Double feed is prevented. <br> Strong: No feed is prevented. <br> Reference: The spring load changes <br> about $10 \%$ each time the <br> spring is hooked in the next <br> slit. |
| 3 | Re-install the LCT. |

5. PI spring pressure adjustment

a. Adjustment method

| Step | Operation |
| :--- | :--- |
| 1 | Remove the following parts. <br> - Top cover <br> - Paper feed roller unit <br> - Double feed prevention roller |
| 2 | When adjusting the spring pressure for <br> the lower tray, open the upper unit and <br> detach the following parts. <br> - Paper feed roller unit <br> - Double feed prevention roller |
| 3 | Using flat-nose pliers, change the spring <br> hooking position through the hole at dou- <br> ble feed prevention roller. <br> Weak: Double feed is prevented. <br> Strong: No feed is prevented. <br> Reference: Normally the spring hook- <br> ing position should be <br> changed when no feed <br> occurs. However, if the set- <br> ting for this position is too <br> strong, double feed may <br> occur for normal paper. |
| 4 | Install the parts, following the removal <br> steps in reverse. |

## [7] Paper feed height (upper limit) adjustment (LT-402/LT-412 only)

Caution1: Paper feed height (upper limit) adjustment must be performed when no paper feed occurs, when the leading edge of the fed paper is folded or when a convexly curled paper is fed. To perform this adjustment, move the upper limit sensor mounting bracket vertically.
Caution2: This adjustment may affect the release amount of the pick-up so that [8] pick-up roller release amount adjustment must be performed after this adjustment.

1. Tool

- Screwdriver (Phillips)
- Scale

2. LCT Adjustment of paper feed height (upper limit)

a. Adjustment method

| Step | Operation |
| :---: | :---: |
| 1 | Move the up/down plate up. |
| 2 | Open the top cover. |
| 3 | Measure the distance between the top surfaces of the paper feed guide and paper up/down plate and check whether it is within specifications. <br> Standard value: 2 to 5 mm If the leading edge of the paper is folded irrespective of whether the above distance is within specifications, perform steps 4 and later. |
| 4 | Remove the spring from the paper pick up roller unit. |
| 5 | Remove two stop rings to slide the two bearings outward, then remove the paper feed roller unit. |
| 6 | Remove two screws securing the sensor mounting bracket and install them in the outside mounting holes (oblong holes) temporarily. |


|  | $<$ When the heights are not within speci- <br> fications> <br> Adjust the position of the sensor mount- <br> ing bracket vertically so that the distance <br> between the top surfaces of the paper <br> feed guide and paper up/down plate is <br> within the specifications. <br> When raising the height of the paper up/ <br> down plate: <br> Lower the sensor mounting bracket. <br> 7 <br> When lowering the height of the paper <br> up/down plate: <br> Raise the sensor mounting bracket. <br> $<$ <When any fault has occurred> <br> When the paper has folded leading <br> edge: <br> When the paper has dented curl: <br> Raise the sensor mounting bracket. <br> When the paper has convex curl: <br> Lower the sensor mounting bracket. |
| :--- | :--- |
| 8 | Install the paper feed roller unit and <br> spring. |
| 9 | Close the top cover. |

## [8] Pick-up release amount adjustment (LT-402/LT-412 only)

Caution: Pick-up release amount adjustment must be performed when a no-feed jam occurs frequently. To perform this adjustment, adjust the mounting position of the pick-up solenoid.

1. Tool

- Screwdriver (Phillips)
- Scale

2. LCT pick-up release amount adjustment

a. Adjustment method

| Step | Operation |
| :---: | :---: |
| 1 | Move the paper up/down plate up. |
| 2 | Open the top cover. |
| 3 | Remove the paper feed pick-up cover/B. |
| 4 | Remove the spring from the paper feed roller unit. |
| 5 | Pull the moving parts of the pick-up solenoid and check whether the distance between the bottom surface of the paper feed roller and the top surface of the up/ down plate is within specification. <br> Specification: 0.5 to 2.5 mm If the distance is out of spec, perform steps 5 and later. |
| 6 | Loosen one screw and adjust the mounting position for the pick-up solenoid. <br> Caution: Take a note to remember the initial mounting position. |
| 7 | Secure the pick-up solenoid by tightening the screw. |
| 8 | Install the spring. |
| 9 | Install the paper feed pick-up cover/B. |
| 10 | Close the top cover. |

## [9] RADF mounting position adjustment

1. Tool

- Screwdriver (Phillips)
- Open-end wrench or flat-nose pliers.

2. Adjustment method


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## [11] RADF paper skew adjustment

1. Face side of original paper skew adjustment

Note: Perform this adjustment after completing the RADF skew adjustment described in the previous page.


| Step | Operation |
| :---: | :---: |
|  | Make a copy in the single sided to single <br> sided copy mode, then check the skew <br> of the original. (Either pattern A or B) |
| 1 | Copypaper <br> feed direction |
| 2 | Copy paper |
| Opaper skew pattern A Paper skew pattern B |  |
| the registration roller bracket. |  |


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|  | Move the registration roller bracket one <br> calibration in the direction below accord- <br> ing to the paper skew pattern. <br> For skew in pattern A: <br> Move the registration roller bracket <br> downwards (direction down with orig- <br> inal feed flow). <br> For skew in pattern B: <br> Move the registration roller bracket <br> upwards (direction up towards original <br> feed flow). |
| :--- | :--- |
| 5 | Repeat steps 2 to 4 unitl the original <br> skew is within specified range (0.5\% or <br> less). |

Specified range: Paper skew $\pm 0.5 \%$ or less (Paper skew in the paper feed direction)
2. Back side of original paper skew adjustment


| Step | Operation |
| :---: | :---: |
| 1 | Make a copy in the double sided - single sided copy mode, then check the skew of the original. (Either pattern A or B) |
| 2 | Open the Jam access cover. |
| 3 | Loosen the set screw and release the R range adjustment plate. |
| 4 | Move the R range adjustment plate one calibration in the direction below according to the paper skew pattern. <br> For skew in pattern A: <br> Move the $R$ range adjustment plate to left side. <br> For skew in pattern $B$ : <br> Move the $R$ range adjustment plate to right side. |
| 5 | Repeat steps 2 to 4 until the original skew is within specified range ( $0.5 \%$ or less). |

Specified range: Paper skew $\pm 0.5 \%$ or less (Paper skew in the paper feed direction)

4
[12] FNS Adjusting the magnets on the bypass conveyance guide plate (FS-110/210)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front door. |
| When the magnet on the by-pass con- |  |
| veyance guide plate is stuck to the front |  |
| panel, check whether the stopping piece |  |
| of the plate makes contact with the con- |  |
| veyance guide plate /L. |  |
| 3 |  |

b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Loosen the two screws securing the <br> magnet. |
| 2 | Adjust the by-pass conveyance guide <br> plate to the direction indicated by the <br> arrow, and press it against the convey- <br> ance guide plate /L. |
| Adhere the magnets to the front panel <br> and retighten the magnet securing <br> screws. |  |
| 4 |  |


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## 4. [13] FNS adjusting the by-pass gate (FS-110/210)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front door. |
| 2 | Draw out the stacker unit. |
|  | Remove the 2 screws securing the rail <br> stopper, and pull out the stacker unit <br> even further. <br> Caution: To prevent the finisher from <br> toppling over, place aboard or <br> the like to support the pulled- <br> out unit. |
| 3 |  |


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b. Adjustment


| Step | Operation |
| :--- | :--- |
|  | Loosentwo screws securing the by-pass <br> gate SD (SD705) and adjust the position <br> of SD705 so that the gap between the <br> by-pass gate and by-pass conveyance <br> plate becomes within the standard <br> value. |
| 5 |  |

## [14] FNS Adjusting the Shift Position

 (FS-110/210)1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :---: |
| 1 | Remove the following parts. <br> - Top cover or option PI (if installed) <br> - Top cover /2 |
| 2 | Power on the main body and drive the roller shift (M702) using the 47 mode (code 75-2/75-3). |
| 3 | At the both HP (home position) and shift position, check whether the edge of the actuator for the slide gear fits into the notched hole of the slide stay. |
| 4 | If the edge of the actuator for the slide gear does not fit into the notched hole of the slide stay, perform the following adjustment: |


| Step | Operation |
| :--- | :--- |
| foosen the screw fastening the bracket |  |
| shift the bracket to adjust the amount of |  |
| discrepancy using the mark as a guide. |  |


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## 4

[15] FNS Adjusting the paper exit solenoid
(FS-110/210)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Remove the following parts. <br> - Top cover $/ 1$ or option PI (if installed) <br> - Top cover $/ 2$ |
| - Rear cover |  |$\quad$| Power on the main body, and turn on the |
| :--- |
| paper exit solenoid (SD704) using the 47 |
| mode (code 75-31). |

b. Adjustment


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| Step | Operation |
| :--- | :--- |
|  | Place the solenoid to its original position, <br> and tighten the screw securing the sole- <br> noid bracket at the position where the <br> paper exit guide makes contact with the <br> cushioning rubber of the paper exit guide <br> stay. <br> Caution: <br> Make sure that the difference <br> in height between the paper <br> exit guide and the paper exit <br> guide stay is 1 mm and <br> greater. |
| Solenoid bracket |  |

## [16] FNS Adjusting the mount location of

 the paper exit arm (FS-110/210)1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front door and pull out the <br> stacker unit. |
| When aligning the actuator edge of the |  |
| belt dection gear with the notch of |  |
| panel /rear, check whether the top sur- |  |
| face of paper exit belt arm is positioned |  |
| in the middle of the two marks. |  |


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b. Adjustment

| Step | Operation |
| :--- | :--- |
| Remove the two screws securing the rail |  |
| stopper and pull out the stacker unit |  |
| even further. |  |
| To prevent the Finisher from toppling |  |
| over, place a board or the like to support |  |
| the pulled-out unit. |  |
| Board to prevent the Finisher from toppling over |  |

## [17] FNS Adjusting the mount location of the alignment plates / U (FS-110/210)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 4 | Power on the main body, perform the 47- <br> mode Code 75-8: Alignment/U (M705) <br> home position search, and then power <br> off. |
| 2 | Open the front door and pull out the <br> stacker unit. |
|  | Check whether the actuator of the align- <br> ment HP/U (PS708) is aligned with the <br> home position. |



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44 \begin{tabular}{|l|l|l|}
\hline Step \& \multicolumn{1}{|c|}{ Operation } <br>

\hline \& | Check whether the distances A for the |
| :--- |
| alignment plate /U are within specifica- |
| tion. |
| Spec values: $\mathrm{A}=340.6$ | <br>

\hline 5
\end{tabular}

b. Adjustment

[18] FNS Adjusting the mount location of the alignment plates / L (FS-210)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Make sure that "Adjusting the mount <br> location of the alignment plates / U" is <br> finished. |
| 2 | Power on the main body, drive the <br> motor(s) using the following codes in the <br> 47 mode, and then power the machine <br> off. <br> Code 75-8: Alignment /U (M705) HP <br> search <br> Code 75-21: Alignment /L (M716) HP <br> search <br> Code 75-40: Stopper (M718) position- <br> ing shift (larger than 8.5x11R) |
| 3 | Open the front door and pull out the <br> stacker unit. |
| 5 | Take off the stapler unit cover. <br> Check whether the actuators for the <br> ment HP/L(PS724) are aligned with the <br> home position. <br> 5 |


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b. Adjustment


## [19] FNS Adjusting the stapling position

 (Flat stapling) (FS-110/210)Caution: Do not use hands to move stapler unit to horizontal direction.
(Otherwise the belt and the gear teeth skipping may occur.)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
|  | Perform the following stapling actually <br> and check whether they are within spec- <br> ification. In the case of flat stapling, <br> check whether the paper edge is parallel <br> to the virtual line running between the <br> staplers. <br> One-corner stapling <br> (at rear) |
| 1 | One-point stapling <br> (at front) |


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b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Open the front door and pull out the <br> stacker unit. |
| 2 | Take off the stapler unit cover. |
|  | Loosen the adjustment screws for the <br> clincher/F and Clincher/R and perform <br> adjustment using marks as a guide. |

3


4
Execute stapling to confirm that the stapling is within the specification range.
[20] FNS Adjusting the stapler vertical positioning (FS-110/210)

Caution: Do not use hands to move stapler unit to horizontal direction.
(Otherwise the belt and the gear teeth skipping may occur.)

1. Tool

- Screwdriver (Phillips)
- Jig

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :---: |
| 1 | Execute stapling and check for buckled staple-needles or clinching failure. <br> Caution: When replacing or removing a clincher or stapler, perform adjustment after reinstalling. |
| 2 | When any defect described above can be seen, perform the following adjustment: |

b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Open the front door and pull out the <br> stacker unit. |
| 2 | Take off the stapler unit cover. |


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Step

| Step | Operation |
| :--- | :--- |
| Rotate the stapler gears downward. |  |
| Adjust the clincher position so that the |  |
| plate on the cartridge fits smoothly into |  |
| the groove on the jig. Rotate the stapler |  |
| gear further to fit the plate in the groove |  |
| in the jig and the jig in the clincher unit |  |
| completely. |  |

## [21] FNS Adjusting the stapling position (stitch-and-fold) (FS-210)

$\uparrow$ Caution: Do not use hands to move stapler unit to horizontal direction.
(Otherwise the belt and the gear teeth skipping may occur.)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
|  | Execute stapling and check whether the <br> paper edge is parallel to the virtual line <br> connecting the two staples or whether <br> the amount of discrepancy is within <br> specification. <br> Spec value: within 1mm for the <br> amount of discrepancy |
| 2 | If the amount of discrepancy for the <br> booklet is out of spec, perform the fol- <br> lowing adjustment: |


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b. Adjustment


## [22] FNS Adjusting the angle of the folding stopper (FS-210)

© Caution: Do not use hands to move stapler unit to horizontal direction.
(Otherwise the belt and the gear teeth skipping may occur.)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
|  | Execute stapling using A3 paper and <br> check whether the fold side discrepancy <br> for A3 paper is within the limit. <br> Limit: A= within 1mm |
| 2 | If the amount of discrepancy is out of <br> specification, perform the following <br> adjustment: |


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b. Adjustment

| Step | Operation |  |
| :---: | :--- | :--- |
| 1 | Open the front door and pull out the <br> stacker unit. |  |
| 2 | Take off the stapler unit cover. |  |
|  | Loosen the five screws securing the fold- <br> ing stopper and adjust it using the mark <br> as a guide. |  |
| 3 |  |  |

[23] FNS Adjusting the folding force (FS-210)

1. Tool

- Flat-nose pliers

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | If necessary, change the force and pres- <br> sure of the folding rollers. |

b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Remove the rear cover. |
| 2 | Open the front cover and pull out the <br> stacker unit. |
| 3 | Remove the stacker unit cover. |
| 4 | Change the mounting places of the two <br> pressure springs for each of the front <br> and rear. <br> Caution: The four pressure springs | should be hooked on the hole with the same character.

4


| Step | Operation |
| :---: | :--- |
| 5 | Install the rear cover and stacker unit <br> cover, put the stacker unit away, and <br> close the front cover. |

## [24] FNS Adjusting the three-holding positions (FS-210)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |  |  |
| :---: | :--- | :--- | :---: |
| 1 | Make sure that the "Adjusting the angle <br> of the folding stopper" is finished. |  |  |
|  | Execute three-holding and check <br> whether the three-holding positions are <br> within specification. |  |  |


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b. Adjustment

[25] PK Adjusting the tilt of the punch hole position (PK-110)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Check the following items: <br> - The finisher is connected to the main <br> body. <br> - The main body is loaded with the <br> paper based on the punch specifica- <br> tions. |
| 2 | Check the skew of output paper in <br> advance. <br> - Slide the side guide plate and the rear <br> guide plate for the main body's feed <br> tray, and align the paper loaded on the <br> main body's tray. <br> - Check the skew by using the platen <br> copy or adjustment mode. |
| 3 | To check the tilt of the punch hole posi- <br> tion, make a sample copy in the punch <br> mode. |
| 4 | Make three copies each in single side <br> copy mode and double side copy mode <br> with the punch mode to check the skew. |


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b. Adjustment

| Step | Operation |
| :---: | :---: |
|  | Measure the position of the sampled punch holes to check the tilt of the position. <br> Tilt of the punch hole position: A-B (Difference in position of the two punch holes)/C (Distance of hole pitch) |
| 2 | Open the front cover. |
| 3 | Loosen the two adjustment screws of PK. |
| 4 | Using the mark scale as a guide, move the punch unit horizontally by the amount of tilt for the punch hole position. 1 scale: 0.5\% |
| 5 | Retighten the screws. |
| 6 | Make a sample copy of punch mode and recheck the tilt of the punch hole position. |

## [25-1] PK Adjusting the tilt of the punch hole position (PK-120)

2. Tool

- Screwdriver (Phillips)
- Scale

3. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check the following items: <br> - The finisher is connected to the main <br> body. <br> - The main body is loaded with the <br> paper based on the punch specifica- <br> tions. |
| 2 | Check the skew of output paper in <br> advance. <br> - Slide the side guide plate and the rear <br> guide plate for the main body's feed <br> tray, and align the paper loaded on the <br> main body's tray. <br> - Check the skew by using the platen <br> copy or adjustment mode. |
| 3 | To check the tilt of the punch hole posi- <br> tion, make a sample copy in the punch <br> mode. |
| 4 | Make three copies each in single side <br> copy mode and double side copy mode <br> with the punch mode to check the skew. |


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b. Adjustment


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## [26] PK Adjusting the punch hole vertical

 position (PK-110)Caution1: Perform this adjustment after finishing the adjustment for the tilt of the punch hole position.
Caution2: Complete the PK adjusting the punch hole vertical position feeding the paper from the by-pass tray first. Then, perform this adjustment feeding paper from the tray that is most frequently used.
Caution3: If there is a difference in the punch hole vertical position, perform the centering adjustment for the trays of main body or PI.

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Check the following items: <br> - The finisher is connected to the main <br> body. <br> - The main body is loaded with the <br> paper based on the punch specifica- <br> tions. |
| 2 | Check the skew of output paper in <br> advance. <br> Slide the side guide plate and the rear <br> guide plate for the main body's feed tray, <br> and align the paper loaded on the main <br> body's tray. |
| 3 | Make three copies each in single side <br> copy mode and double side copy mode <br> with the punch mode to check the posi- <br> tion of the holes. |

b. Adjustment

| Step | Operation |
| :---: | :---: |
| 1-1 | Fold the sample at the middle of the paper, check the position of each punch hole, and calculate the dimension to be adjusted. <br> Specified limit: (A-B) Error of position of the two punch holes))/2 <br> Reference: For adjustment of the punch hole vertical position, the dimension of the punch hole vertical position can be adjusted by $\pm 5 \mathrm{~mm}$. Adjusting the hole pitch is not allowed. |
| 2 | Open the front cover. |
| 3 | Loosen the two adjustment screws for PK. |
| 4 | Using the mark scale as a guide, move the punch unit vertically to $1 / 2$ the distance of the above dimension. |
| 5 | Retighten the screws. |
| 6 | Make a sample copy of punch mode and recheck the discrepancy of the punch hole vertical position. |


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## [26-1] Sensitivity adjustment for the PK paper edge sensor (PK-120)

1. Tool

- Screwdriver (Phillips)
- Clock driver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check that the finisher is connected to <br> the main body. |

b. Adjustment



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## [27] PI Centering Adjustment (PK-110)

② Caution1: PI Centering adjustement must be performed on the upper tray first, then on the lower tray. When it is necessary to slide the side guide plate (rear) a lot, perform step 11 before step 3 and subsequent procedures.
Caution2: When tightening two screws of the side guide plate (rear), be careful not to tighten them too much. (Tightening torque: less than $5 \mathrm{~kg} / \mathrm{cm}$ )

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check that PK adjusting the punch hole <br> vertical position has been completed. |
| 2 | Perform Tray $1 / 2 / 3$ centering adjust- <br> ment. |
| 3 | Feed the three sheets from PI with the <br> punch mode. |
| 4 | Check the position of each punch hole <br> on the three sheets. |

b. Adjustment


| Step | Operation |
| :---: | :---: |
| 2 | When adjusting for the lower tray, remove two screws and slide rightward to remove the side guide plate (rear). |
| 3 | Loosen two adjustment screws securing the side guide plate (rear), and slide it by the twice the difference. (ie: If there is 1.5 mm difference in direction of rear side, slide by 3 mm to rear side.) 1 scale : 2mm |
| 4 | Fasten the two adjustment screws securely to fix the side guide plate (rear). |
| 5 | In case of the lower tray, install the side guide plate (rear). |
| 6 | Set a sheet on the tray and fit the side guide plate (rear) to the sheet to check that the side guide plate (rear) is parallel to the sheet. |
| 7 | Feed the three sheets from PI with the punch mode. |
| 8 | Check the position of each punch hole. |
| 9 | Repeat step 2 to 8 until the difference of the holes is improved. |
| 10 | Install the adjustment cover to the side guide plate (rear). |
| 11 | Set $8.5 \times 11 \mathrm{R}$ size paper to the tray and perform the cover sheet tray size adjustment in 36 mode. |


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## [27-1] Adjusting the tilt of PI (when PK

 punch is used) (PK-110)1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check the following items: <br> - PI is connected to FNS. <br> - The tray of PI is loaded with paper. |
| 2 | Check the tilt of output paper in advance. <br> - Feed 3 sheets from PI with the Punch <br> mode selected to check the tilt of <br> punch holes. |
| 3 | Loosen one screw securing the guide <br> plate. |

b. Adjustment

| Step | Operation |
| :--- | :--- |
|  | Fold each of the fed 3 sheets into two as <br> illustrated below and find out in which <br> direction the punch holes tilt. <br> Tilting toward <br> the right edge <br> of the sheet |
| 1 | Tilting toward <br> the left edge <br> of the sheet |
| 2 | Open the FNS front cover. |
| 3 | Loosen one screw securing the guide <br> plate. |



## [27-2] Sensitivity adjustment for the PZ paper edge sensor (PZ)

1. Tool

- Screwdriver (Phillips)
- Precision driver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check that PZ is connected to the main <br> body. |

b. Adjustment

| Step | Operation |
| :--- | :--- |
|  | Loosen two screws in the lower part of |
| PZ rear cover, remove two screws in the |  |
| upper part, and then remove the rear |  |
| cover. |  |
| 2 | Power on the main body. |

3 \begin{tabular}{|l|l|}
\hline Step \& \multicolumn{1}{|c|}{ Operation } <br>

\hline \& | Turn the volume fully clockwise and then |
| :--- |
| turn it back counterclockwise until the |
| LED corresponding to each volume |
| lights up. |

\end{tabular}



Relation between VR to adjust and LED to check.

- VR $1 \rightarrow$ LED 2
- VR $2 \rightarrow$ LED 3
- VR $3 \rightarrow$ LED 4
- VR $4 \rightarrow$ LED 5
- VR $5 \rightarrow$ LED 6

| 4 | Perform the procedure of step 3 for all <br> five volumes. |
| :---: | :--- |
| 5 | Power off the main body after complet- <br> ing the adjustment. |
| 6 | Reinstall the rear cover. |


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| KOnica7155/7165 | SERVICE HANDBOOK | $\widehat{3}$ | Apr. 2003 | $1-130-4$ | REPLACEMENT |

## [28] FNS Stapler Driver Belt Position

 Adjustment (FS-110/210)CAUTION: Stapler drive belt position adjustment is only performed when the positions of drive belt and gear are misaligned when following other adjustment procedures.

1. Tool

- Screwdriver (Phillips)
- Stapler PS jig
- Hexagonal wrench

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Remove the following parts: <br> • Rear cover <br> - Stapler unit cover |
| 2 | Insert the stacker unit. |

b. Adjustment



Caution: Do not loosen the screws on the clincher. In order to adjust the position, move the stapler /R or the clincher/R slightly toward the horizontal direction.

| 4 | Insert the stacker while the jig is installed <br> (that is, when the plate and the jig are <br> compleetely locked with each other. |
| :---: | :--- |
| 5 | Tighten two screws of the staple slide <br> pulley/B from the backside. |
| 6 | Pull out the stacker unit and remove the <br> jig. Then, check the staple for the follow- <br> ing movements: <br> - Stapling at one position/rear <br> - Stapling at one position/front <br> - Stapling at two positions |
| 7 | Install the rear cover and the stapler <br> cover when the adjustment is com- <br> pleeted. | jig. Then, check the staple for the following movements:

Stapling at one position/rear
Stapling at one position/front

- Stapling at two positions

Install the rear cover and the stapler pleeted.

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| KOnica7155/7165 | SERVICE HANDBOOK | $\widehat{1}$ | Nov. 2001 | $1-131$ | REPLACEMENT |

${ }^{4}$ [29] Adjusting the PZ Paper-Path Switching Solenoid (PZ)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method


| Step | Operation |
| :--- | :--- |
| 1 | Open the front door of FNS, remove the <br> front cover of PZ (three screws), and <br> remove PZ from the main body. |
| 2 | Remove the AC cord and the rear cover <br> (four screws). |
|  | Pull out the z-folding/conveyance unit. <br> Remove the two screws from the rail and <br> further draw out the unit. |
| 4 | Screws |
| 5 | Loosen two screws securing the sole- <br> noid bracket. |
|  | Make sure that the gate solenoid/L <br> (SD1) is OFF, and adjust the position of <br> the solenoid bracket so that the gap <br> between the gate tip and the registration <br> guide plate is within the specification <br> range. Fasten the two screws. <br> Spec range: 3 to $5 m m$ (viewing) |
| 6 |  |


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| Step | Operation |
| :--- | :--- |
| 7 | Make sure that the gate solenoid/L <br> (SD1) is ON, and adjust the position of <br> the solenoid bracket so that the gap <br> between the gate tip and the registration <br> guide plate is within the specification <br> range. Fasten the two screws. <br> Spec range: 2 to 4.6mm <br> The plunger must operate smoothly <br> when the solenoid is turned ON or OFF |
| Reassemble in the opposite sequence |  |
| to removal. |  |
| Caution: The conveyance unit must be |  |
| inserted so that the plate on |  |
| the conveyance unit (see the |  |
| figure below) is positioned in |  |
| side the rail on the enclosure. |  |

## 44 [30] Adjusting the Tension of the PZ Punch Shift Timing Belt (PZ)

1. Tool

- Screwdriver (Phillips)
- Tension gauge or spring balance

2. Adjustment method

|  |  |
| :---: | :---: |
|  |  |
|  | 7272 |
| Step | Operation |
| 1 | Remove the PZ from the main body. |
| 2 | Remove the four screws to remove the rear cover. |
| 3 | Loosen the two screws holding the punch shift motor (M5). |
| 4 | Use a tension gauge or a spring balance to measure the tension at the A point. When a specification value is observed, tighten the screws. <br> Spec value: $\mathrm{A}=4 \pm 0.4 \mathrm{~kg}$ <br> Note: The tension must be measured at the root of the motor shaft. Otherwise, the measuring operation may cause the shaft to bend. |
| 5 | Reinstall the rear cover using four screws. |


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## 4.

[31] Adjusting the PZ 1st Folding Skew (PZ)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method

| Step | Operation |
| :---: | :--- |
| 1 | Set 11x17 paper into the tray. |
|  | Set the original chart and make a copy of <br> it. Check the copy for a possible folding <br> skew. <br> Spec range: within 0.5 mm |
| 3 |  |



Remove four screws to remove the zfolding/conveyance unit cover.

| 6 | Loosen four screws securing the 1st <br> folding stopper assembly. |
| :--- | :--- |
| Sake adjustments by moving the 1st <br> stopper assembly right or left using the pattern A:Move the 1st stopper <br> ticks for reference. <br> assembly to the left. |  |
| 8 | Skew pattern B:Move the 1st stopper <br> assembly to the right. |
| the 1st stopper assembly, and put the |  |
| conveyance unit into the basis position. |  |
| Make a copy of the adjustment chart to |  |
| check for 1st folding skew. |  |$|$| Repeat Steps 6 to 8 until the 1st folding |
| :--- |
| skew falls within the spec range (0.5mm |
| or less). |


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[32] Adjusting the Position of the PZ 2nd Folding Stopper (PZ)

Caution: This adjustment affects the 2nd folding skew. Therefore, first complete this adjustment and then proceed to the [39] Adjusting the PZ 2nd Folding Skew section.

1. Tool

- Screwdriver (Phillips)
- Hex wrench

2. Adjustment method


| Step | Operation |
| :---: | :--- |
| 1 | Set paper into the tray and make a copy <br> (required to place the paper stopper at <br> its HP position). |
| 2 | Open the front door of the FNS and draw <br> out the conveyance unit. |
| 3 | Make sure that the distance betweenthe <br> edge of the guide plate and the paper <br> stopper is within the specification range. <br> Spec range: A $=20 \pm 0.5 \mathrm{~mm}$ <br> If the distance is outside the spec range, <br> adjust according to the instructions <br> described in the following step. |
| 4 | Loosen the screws holding the pulleys <br> and adjust the distance by rotating the <br> pulleys. Tighten the screws. |
| Note:Do not rotate the shaft on which <br> the pulleys are attached. If it is <br> rotated for some reason, the <br> stopper is placed out of its HP <br> position. Then perform the proce- <br> dure again from Step 1. |  |

## 4. [33] Adjusting the PZ 2nd Folding Skew 2nd Stopper Assembly (PZ)

Caution: Before beginning this operation, complete the adjustment described in the [38] Adjusting the Position of the PZ 2nd folding Stopper section.

1. Tool

- Screwdriver (Phillips)

2. Adjustment method


| Step | Operation |
| :---: | :--- |
| 1 | Set A3 paper into the tray. |
|  | Set the original chart and make a copy of <br> it. Check the copy for a possible 2nd fold- <br> ing skew. <br> Spec range: within 2 mm |
|  |  |

If the folding skew is outside the spec range, adjust according to the instructions described in the following steps.
MOpen the front door of the FNS and draw out the conveyance unit.

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| Step | Operation |
| :---: | :--- |
| 4 | Loosen the four screws holding the 2nd <br> stopper assembly. |
| 5 | Make adjustments by moving the front or <br> rear side of the 2nd stopper assembly <br> upward using the ticks for reference. <br> Skew pattern A: Move the rear side of <br> the 2nd stopper assembly upward. |
| 6 | Skew pattern B: Move the front side of <br> the 2nd stopper assembly upward. |
| Temporarily tighten the four screws hold <br> ing the 2nd stopper assembly, and put <br> the conveyance unit into the basis posi- <br> tion. Make a copy of the adjustment <br> chart to check for 2nd folding skew. |  |
| 7 | Repeat Steps 4 to 6 above until the 2nd <br> folding skew falls within the spec range <br> (2mm or less). |
| 8 | Tighten firmly the four screws on the 2nd <br> stopper assembly. |

## 4. [34] FNS Adjusting the Magnets on Conveyance Guide Plate B (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front cover. |
| 2 | Check whether conveyance guide plate <br> B makes contact with the cushioning <br> rubber when the magnets are stuck to <br> conveyance guide plate A. |
| 3 | If conveyance guide plate B does not <br> make contact with the cushioning rub- <br> ber, remove the rear cover and carry out <br> adjustment as described below. |

b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Detach all FNS CB (FNS control board) <br> connectors. |
|  | Remove the 2 set screws holding the <br> FNS CB in place. Remove the FNS CB <br> together with its bracket. |
| 3 | Loosenthe 4 magnet-holding set screws <br> (two at the frontand two at the back), and <br> move conveyance guide plate B all the <br> way in the direction indicated by the <br> arrow. |
| 4 | Remove the E-ring and the gear. |


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| Step | Operation |
| :--- | :--- |
|  | Adhere the magnets to conveyance <br> guide plate A and retighten the set <br> screws. |
| 6 | Reassemble in opposite sequence to <br> removal. |

## [35] FNS Adjusting the Magnets on Conveyance Guide Plate C (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front cover. |
| 2 | Check whether conveyance guide plate <br> C makes contact with the cushioning <br> rubber when the magnets are stuck to <br> conveyance guide plate D. |
| 3 | If conveyance guide plate C does not <br> make contact with the cushioning rub- <br> ber, remove the rear cover and carry out <br> adjustment as described below. |

b. Adjustment

| Step | Operation |
| :---: | :--- |
| 1 | Detach all FNS CB (FNS control board) <br> connectors. |
|  | Remove the 2 set screws holding the <br> FNS CB in place. Remove the FNS CB <br> together with its bracket. |
| 3 |  |


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| Step | Operation |
| :--- | :--- |
|  | Adhere the magnets to conveyance <br> guide plate A and retighten the screws. |
| 5 | Reassemble in opposite sequence to <br> removal. |

## 44 [36] FNS Adjusting the Sub-tray Paper Exit Gate (FS-111)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation


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| Step | Operation |
| :---: | :--- |
| 3 | With SD2 (sub-tray paper exit) OFF, <br> measure the gap between the sub-tray <br> gate and the guide plate (indicated by A <br> in the illustration). |

Spec value for gap: $A=4 \pm 0.5 \mathrm{~mm}$.
With SD2ON, measure the gapbetween
the solenoid plunger and the bracket
stopper (indicated by B in the illustra-
tion).
Spec value for gap: $\mathrm{B}=5 \pm 0.5 \mathrm{~mm}$.
5
b. Adjustment

| Step | Operation |
| :--- | :--- | :--- |
|  | Loosen the 2 set screws holding the <br> solenoid in place, and move the solenoid <br> as necessary to adjust. |
| 2 | Retighten the screws. |
| 3 | Reinstall in opposite sequence to <br> removal. |

## [37] FNS Adjusting the Paper-Path

 Switching Gate (FS-111)1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation


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| Step | Operation |
| :---: | :---: |
| 3- | Remove the wirings from the clamps, and move the FNS CB together with its bracket. |
| 4 | With SD1 (gate) ON, measure the distance between the long gate and the guide plate, indicated by A in the illustra tion. <br> Spec value for distance: $A=7.6 \pm 0.5 \mathrm{~mm} .$ |
| 5 | Again with SD1 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration). <br> Spec value for gap: $B=5 \pm 0.5 \mathrm{~mm}$. |
| 6 | If either measurement is out of spec, carry out adjustment as described below. |

b. Adjustment


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[38] FNS Adjusting the By-pass Gate (FS-111)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation


| Step | Operation |
| :--- | :--- | :--- |
|  | Remove the wirings from the clamps, |
| and move the FNS CB together with its |  |
| bracket. |  |


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b. Adjustment


44 [39] FNS Adjusting the Shift Position (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- | :--- |
| 1 | Remove the following parts. <br> - Rear cover <br> - Top cover |
| 2 | Switch the power OFF to ON to OFF. |
|  | With the M2 (roller shift) OFF (home <br> position), check that the actuator on <br> PS18 (roller shift HP) is correctly aligned <br> with the cutout on the shift-unit mounting <br> plate. |


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b. Adjustment


## 4. [40] FNS Adjusting Opening/Closing at the Paper Exit (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Remove the following parts. <br> - Rear cover <br> - <br> - Top cover |
|  | Switch the power OFF to ON to OFF. <br> Then, with the paper exit closed, confirm <br> that the paper exit casing is firmly <br> against the stopper section. |
| 3 | If the casing is not in firm contact withthe <br> stopper, carry out adjustment described <br> as follows. |


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b. Adjustment


## 4 [41] FNS Adjusting the Paper Exit-Open-

 ing Solenoid (FS-111)1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Remove the following parts. <br> - <br> - Rear cover |
|  | With SD4 (paper exit-opening solenoid) <br> ON, measure the gap between the sole- <br> noid plunger and the bracket stopper. <br> Spec value for gap: $\mathrm{A}=6.0 \pm 0.5 \mathrm{~mm}$ <br> SD4 (Exit Opening) |
| 3 | If the gap is out of spec, carry out adjust- <br> ment describe as follows. |


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b. Adjustment

[42] FNS Adjusting the Paper Exit-Opening Lower Guide Plate (FS-111)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | Remove the following parts. <br> - Rear cover <br> - Top cover |
|  | With SD4 (paper exit-opening solenoid) <br> OFF, confirm that the paper exit-opening <br> lower guide plate is a sufficient distance <br> (distance A) higher than the sponge roll-- <br> ers. <br> Spec value: $A=1.5 \mathrm{~mm}$ and greater <br> Lower Guide Plate |


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| Step | Operation |
| :--- | :--- |
|  | Hold down the paper exit-opening lower <br> guide plate with your hand so that the <br> paper exit roller makes contact, and <br> check that the remaining stroke for sole- <br> noid SD4 (distance B) is within spec. <br> Spec value: $\mathrm{B}=2.5 \pm 0.5 \mathrm{~mm}$ |
| If either measurement is out of spec, |  |
| carry out adjustment as described |  |
| below. |  |

b. Adjustment

[43] FNS Adjusting the Mount Location of the Paper Exit Arm (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :--- | :--- |
| 1 | PRemove the screw to remove the belt <br> detection gear. |
| When the stacker paper exit arm is at the |  |
| position shown below, secure the belt |  |
| detection gear with a screw with the |  |
| actuator end face of the belt detection |  |
| gear aligned with the bottom of the |  |
| square hole. |  |


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$\stackrel{4}{4}$ [44] FNS Adjusting the Mount Location of the Upper Alignment Plates (FS-111)

1. Tool

- Screwdriver (Phillips)
- Scale

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Open the front cover and pull out the <br> stacker/stapler unit. |

b. Adjustment

| Step | Operation |
| :--- | :--- |
| Move the upper alignment plates into |  |
| home position. (Move so that the actua- |  |
| tor on the upper-alignment-plate drive |  |
| belt is at PS8 (upper-alignment-plate |  |
| HP). |  |


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[45] FNS Adjusting the Tension of the Upper Alignment Plate Drive Timing Belt (FS-111)

1. Tool

- Screwdriver (Phillips)

2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | If the upper alignment plate drive belt <br> tensioner has been loosened as a result <br> of belt replacement or for some other <br> reason, adjust as described below. |

b. Adjustment method (when some printed sheets are skewed irregularly)


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b. Adjustment


## 4 [47] SF-101 Testing Operation

1. Onboard Switch


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2. Adjustment method
a. Preparation

| Step | Operation |
| :---: | :--- |
| 1 | Check that SF-101 is connected to the <br> main body. |
| 2 | Remove the cover/R. <br> Caution: Keep the conveyance cover <br> closed after removing the <br> cover/R. |

b. Operation

| Step | Operation |  |  |
| :---: | :---: | :---: | :---: |
| 1 | Turn ON the power of main body. |  |  |
| 2 | Set the DIP switches 2 and 3 in accordance with the testing operation. |  |  |
|  | Testing Operation | DIP | witch |
|  |  | 2 | 3 |
|  | Movement to the tray lower limit sensor position | OFF | OFF |
|  | M701 (Conveyance motor) driving (300msec) | ON | OFF |
|  | M703 (Shift motor) driving (shift operation: one time) | OFF | ON |
|  | (Tray up/down motor) initial operation (Moving downward $\rightarrow$ Moving upward) | ON | ON |
|  | 7272fs 1051 |  |  |
| 3 | Immediately after turning ON the DIP switch 4, turn it OFF and check whether the predetermined operation is started. |  |  |
| 4 | Once the testing operation is completed, turn OFF all the DIP switches 1 to 4. |  |  |
| 5 | Reinstall the cover/R. |  |  |

3. Each Test Mode Operation
a. Movement to tray lower limit sensor position SW100-4 :OFF


The shift tray is moved down when M702 (Tray up/down motor) is turned ON.
M702 is turned OFF when PS704 (Toner lower limit sensor) is turned ON.
b. M701 (Conveyance motor) driving (300msec) SW100-4 :OFF
$\downarrow$
ON
$\downarrow$
OFF
M701 (Conveyance motor) is turned OFF 300msec. after it is turned ON.
c. M703 (Shift motor) driving

SW100-4 :OFF
$\downarrow$
ON
$\downarrow$
OFF
The shifting is started when M703
(Shift motor) is turned ON.
M703 is turned OFF when PS702 (Shift HP sensor) is turned ON.
d. M702 (Tray up/down motor) initial operation SW100-4 :OFF

$$
\begin{gathered}
\text { ON } \\
\downarrow \\
\text { OFF }
\end{gathered}
$$

The shift tray is moved down when M702 (Tray up/down motor) is turned ON , and then it is moved up in reverse after a specified time is passed.
M702 is turned OFF when PS703 (Tray upper limit sensor) is turned ON.

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ISW

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## WHAT'S ISW?

ISW (In-System Writer) is a process of updating the control programs stored in flash ROM mounted on various control boards in a digital copier without isolating the boards from the copier. Running ISW enables you to upgrade control programs without replacing the boards and maintain the boards during their replacement. Tool available for running ISW include ISW Trns (PC software), which connects a personal computer (PC) to the digital copier.
This tool can be plugged into the ISW connector or USB connector (7255/7272) of the digital copier to directly update the control programs in flash ROM assembled in the machine.
The copier can be directly connected to the internet without PC interface to update the control programs in the flash ROM.
This chapter focuses on instructions to set up this machine to run ISW. For instruction on how to run ISW Trns refer to the ISW (In-System Writer) Service Handbook.

Note: Only ISW Trns is enabled with ISW for this machine and the program cannot be updated via ISW Tool.

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## SETUP

## [1] ISW-compatible boards

7155/7165/7255/7272 allows ROM data residing on the following boards to be updated via ISW:

- Image control board
- Printer control board
- Finisher control board (Except for FS-111)

The ROMs of other boards than the above need to be replaced.
[2] Data flow
$\mathrm{PC} \rightarrow$ Image control board $\stackrel{\downarrow}{\text { Printer control board }}$
$\stackrel{\downarrow}{\downarrow}$
Finisher control board

## Important Note:

The availability of the image control program is prerequisite to updating on other boards.
[3] Prepare the copier to start an ISW transfer

1. Transfer modes

The copier supports two transfer modes as described below.

- Power-on mode

If the copier does not have the image control program installed, the program can be sent directly from a PC to the machine when the main switch is turned on.

- 25 mode

The 25 mode will only work if the image control program is installed.

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2. Instance of ISW transfer

Instances of ISW transfer are as described below:

- Writing ROM data newly (Ex. when replacing boards)

|  | Normal startup display | Writing method | Condition |
| :--- | :--- | :--- | :--- |
| Image control | Flashing timer LED <br> Nodisplay on the operation <br> LCD | Writing is enabled with <br> power turned ON. | The copier does not have the <br> image control program installed. |
| Others | Error code display | 25 mode | The copier has the image control <br> program installed. |

- Upgrading

|  | Normal startup display | Writing method | Condition |
| :--- | :--- | :--- | :--- |
| Image control | Normal | 25 mode | The copier has all the programs <br> installed. |
| Others | Normal |  |  |

2 3. Error Code

| Error Code | Description | Action No. |
| :---: | :--- | :---: |
| 01 | There is an error in the command to ISW processing unit. | a |
| $1 F$ | A program error is detected. | a |
| 41 | Input data format error. | b |
| 42 | Invalid machine name input data. | b |
| 43 | Invalid board name input data. | b |
| 81 | Input device error such as input timeout. | c |
| C1 | Failed to erase flash ROM. (during ISW to image control board) | d |
| C2 | Failed to write to flash ROM. (during ISW to image control board) | d |
| C3 | ROM checksum error. (during ISW to image control board) | e |
| C4 | Output device error such as output timeout. | f |
| E1 | Failed to erase flash ROM. (during ISW to printer control board and FNS <br> control board) | g |
| E2 | Failed to write to flash ROM. (during ISW to printer control board and FNS <br> control board) | g |
| E3 | Communication error between image control board, printer control board, <br> and FNS control board (during ISW to printer control board and FNS control <br> board) | h |

<Error code table action classification >
(a) Program is not executing normally. Restart from power ON and re-execute the ISW.
(b) Check the ISW transfer data file.
(c) Check that the communication cable between input devices (PC or ISW tool) is properly connected.
(d) There is an error in the flash ROM on the image control board. Restart from ISW. If the error persists, the life of the image control board flash ROM may have expired. Replace the image control board.

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(e) The checksum result after program writing does not match the ROM checksum data of the ISW transfer data file. Restart from ISW. If the error persists, the ISW transfer data file may not be created correctly.
(f) An error was detected in the ISW board targeted at that time. Check the ISW board.
(g) There is an error in the flash ROM on the printer control board or FNS control board. Restart from ISW. If the error persists, the life of the targeted flash ROM may have expired. Replace the targeted control board.
(h) Check the I/F between the image control board and printer control board, or IF between printer control board and FNS control board.

## [4] Preparing the copier to transfer

Start the copier with 25 mode enabled to put the copier into ISW transfer wait state.
In normal case

| Step | Procedure |
| :---: | :--- |
| 1 | Enter 25 mode. |
| 2 | [Memory setting mode menu Screen] |
| Press " © IT ISW". |  |$|$| 3 | SSW mode menu Screen] <br> Select the control board on which to <br> update ROM data. |
| :---: | :--- |
| 4 | ISW mode Screen] <br> The Start key appears, indicating the <br> copiers readiness to launch an ISW <br> transfer. |
| 5 | Follow operating instructions in ISW (In- <br> System Writer) Service Manual. |


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## ［5］Relationships between processing states and operational LEDs

Note：This is displayed only when installing the program to graphics control for the first time．

TIMER


POWER SAVE
ON／OFF

| No． | Processing | TIMER LED（orange） | POWER SAVE LED（green） |
| :---: | :--- | :--- | :--- |
| 1 | Initializing CPU now | OFF | OFF |
| 2 | Checking memory | OFF | OFF |
| 3 | Memory check error（waiting for data <br> from PC） | 〇 Flashing | OFF |
| 4 | ISW processing（receiving data） | OFF | 〇 Flashing |
| 5 | ISW processing（writing to flash ROM） | OFF | 〇 Flashing |
| 6 | Transfer data error | 〇 Flashing | 〇 Flashing |
| 7 | Flash ROM write error | 〇 Flashing | O ON |
| 8 | Memory check successful and reboot | OFF | OFF |

## ［6］Rewriting procedure after an error

 interruptionIf errors occur while writing ROM data，it is writ－ ten the same way as explained in＂Writing ROM data newly＂in＂［3］2．Instances of ISW transfer＂．
－Image control program
The timer LED（orange）flashes．\｛Nothing will appear on the operation LCD because the image control board controls the entire unit．\}
Retry ISW after turning the main switch OFF， then ON．

## －Other control programs

Relaunch the 25 mode to retry ISW．\｛It is assumed that the copier has the iamge control program successfully installed．\}

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## [6-1] Preparation when PZ is installed

When PZ is installed, to rewrite the flash ROM of the finisher, change the wiring within PZ.
a. Procedure
(1) Power off the main body.
(2) Loosen two screws in the lower part of PZ rear cover, remove two screws in the upper part, and then remove the rear cover.
(3) Disconnect one connector (CN6) of PZ control board (PZCB).
(4) Remove the finisher I/F cable assembly hanging on the wire saddle in the lower part of PZ control board (PZCB) and connect it to the connector (CN6) of PZCB disconnected in the step (3).

(5) After completing the rewrite of flash ROM, disconnect the connector from the finisher I/F cable assembly and reconnect the connector to CN6 of PZ control board (PZCB).

## [7] Connecting to the ISW connector

The ISW connector is at the right side of the copier.
a. Procedure
4. In the case of the 7155/7165

Connect the PC parallel port and the copier ISW connector with a parallel interface cable.


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## In the case of the 7255/7272

(1) Connect a PC and the copier with a parallel cable or USB cable.
(2) For performing the Internet ISW, connect a LAN cable to the Ethernet connector of the copier.


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## INTERNET ISW

[1] What is the Internet ISW?
The Internet ISW is the system to perform ISW, by indicating ISW using the Internet mail (E-mail) or browser to let copier automatically acquire the subject program from program server and rewrite its own program. With this Internet ISW, you can update copier's programs just by transmitting E-mail with simple keyword described, without visiting customer's office. With the Web function, you can perform the ISW on customer site, without carrying the actual programs with you.

## [2] Operating environment

- To use the Internet ISW function, the following conditions must be satisfied.
- The copier is connected to a network where programs can be downloaded from the Internet using ftp or http protocol. *1
- The Internet ISW does not function in copier under the following conditions.

The main power is OFF.
The sub power is OFF.
The copier is shut OFF.
Note1: The Internet ISW does not function even of the copier receives the Internet ISW designating mail, as long as it is in any of the above conditions. The Internet ISW starts if the above conditions are released. However, the mails have period of validity.
Note2: The Internet ISW continues to function even if a paper jam or SC occurs, or in the low power mode.

## [3] Main features

With the Internet ISW, the following functions are available.

1. Internet ISW using E-Mail remote notification system *2

By sending simple keywords to a copier by E-Mail, the programs in the copier are rewritten automatically.
The boards of which programs can be rewritten with the Internet ISW are as follows. *3
Image control board (I)
Print control board (C)
FNS board (N)
(Video I/F board (V))
2. Internet ISW using Web utility

By accessing copier main body's homepage via PC web browser, programs in the copier are rewritten automatically. To use the function, a Web terminal that is networked to the copier is necessary. *4
*1: Programs can be downloaded using Firewall.
*2: To use the function, the E-Mail remote notification system must be setup separately.
*3: The available boards are different depending on the copier models.
*4: In case it is connected to a LAN, it can only be used within the LAN.

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $2-8$ | ADDITION |

## [4] Initial setting

To use the Internet ISW, the related settings such as network parameter, program server address, firewall address must be performed in the copier main body beforehand.
Also, to use the [Internet ISW using E-Mail remote notification system], the related settings such as account registration must be set on the mail server separately.
For the details, please refer to the Service manual for the E-Mail remote notification system.

## 1. Setting on Control panel

First, set the copier's IP address on the control panel, to network the copier. If it has already been set, go to the next setting.
Step 1: Select "Key operator menu" on the control panel.
Step 2: Select "[1] System initial setting".
Step 3: Select "[3] IP address setting".
Step 4: Enter [IP address], [Subnetmask] and [Gateway address]. *5
Step 5: Reboot the copier.

## 2. Setting on Web browser

Next, set the program server, etc. from the Web browser. To use the Web browser, prepare a networked PC *6.

## (Considerations)

- In any setting item, space cannot be set.
- If there is a mistake in input process on the Web browser, be sure to correct it according to error message displayed. If the mistake is left without correction, program download error may occur.
- Web's layout may change without prior notice.


## Step 1: Start the Web browser. *7

Step 2: Specify the copier's IP address that you have entered at [Setting on Control panel]. If you access the copier's http address, the [Main page] as the top figure on next page appears.
*5: Copier's IP address, etc. are usually assigned by the system administrator.
For the details, please contact your system administrator.
*6: Prepare a PC by borrowing customer's PC or carrying laptop PC, for example.
*7: If proxy is set on the web browser, it may not be able to access the copier's http address (web page). For the details, please contact your system administrator. As Web browser, Internet Explorer or Netscape is recommended.
Do not perform setting from two or more browsers concurrently.

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Step 3: On the [Main page], click the [Environment setup], to display [Login to Environment setup] page.


## Copier Web Utility Main Page

Step 4: On [Login to Environment setup] page, enter the key operator password and click Apply. The environment setup list appears. Then click [Extension for maintenance].


Login window to Environment setting


Environment setup screen

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Step 5: On [Login to Extension for maintenance] page, enter the password for mode change and click Apply. The environment setting list appears. Then click [Internet ISW].


Login window to Extension for maintenance


Extension for maintenance screen

Step 6: Click [Initial Setting].


Internet ISW main screen

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $2-11$ | ADDITION |

Step 7: Set proxy server.
When you don't use proxy server (firewall), enter only the ISW password for mail and go to Step 8.

| - Use of proxy | Select [no] if you do not use proxy |
| :---: | :---: |
|  | Select [Use ftp proxy] if you use ftp proxy |
|  | Select [Use http proxy] if you use http proxy |
| - Type of proxy server *8 | If you selected [Use ftp proxy] for [Use of proxy], select the type of proxy from the following. <br> Type1 [USER USER@HOST] <br> Type2 [OPEN HOSTNAME] <br> Type3 [FW USERNAME $\rightarrow$ FW PASSWORD $\rightarrow$ SITE HOSTNAME] <br> Type4 [FW USERNAME $\rightarrow$ FW PASSWORD $\rightarrow$ USER USER@HOST] |
| - Proxy server IP | If you use proxy server, enter the IP address of the proxy server. |
| - Port No. | If you use proxy server, set the port No. that is used by the proxy server. |
| - Proxy server account | If you selected Type1 or Type2 for [Type of proxy server], set an account name for the proxy server. |
| - Proxy server password | If you selected Type1 or Type2 for [Type of proxy server], set a password for the proxy server. |

*8: Types 2, 3 and 4 are not guaranteed.


When you finish entering all items, click [Next] and check the contents on the setting confirmation screen. If all are fine, click [Next]. If there is any input error, click [Back] and reset the item according to the message in red.

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Step 8: If you selected [Use http proxy] or [Use ftp proxy] in Step7, go to Step 8-A. If you selected [no], go to Step8-B.

Step 8-A: Set the program server. (Proxy server is used)

| - Program server address | Enter the address of the server where programs to download are stored. <br> Select the protocol you use from the drop down list at the left and enter the <br> following address in the test box at the right. <br> In case of ftp, it is the relative path from the home directory. <br> Example: ftp://k-tsc2.sc2.ne.jp/7165/newest |
| :--- | :--- |
| ■ Program server account | Enter the account name of the program server. |
| - Program server password | Enter the program server password. |
| - Reception timeout | Set the program reception timeout. (Default: 30 minutes) <br> If timeout occurs, the program downloading is forcibly terminated. Without <br> performing ISW, the machine recovers to normal mode. |



When you finish entering all items, click [Next] and check the contents on the setting confirmation screen. If all are fine, click [Finish]. If there is any input error, click [Back] and reset the item according to the message in red.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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Step 8-B: Set the program server. (Proxy is not used.)

| ■ Program server address | Select a protocol to receive programs. |
| :--- | :--- |
| $\square$ Program server IP | Enter the IP address of the server where programs to download are stored. |
| $\square$ Program directory | For http, enter path that follows the host domain. For ftp, enter the relative <br> path from the home directory. <br> Example: $7165 /$ newest |
| ■ Program server account | Enter the account name of the program server. |
| ■ Program server password | Enter the program server password. |
| ■ Reception timeout | Set the program reception timeout. (Default: 30 minutes) <br> If timeout occurs, the program downloading is forcibly terminated. <br> Without performing ISW, the machine recovers to normal mode. |



When you finish entering all items, click [ Next ] and check the contents on the setting confirmation screen. If all are fine, click [Finish]. If there is any input error, click [Back] and reset the item according to the message in red.

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Step 9：Perform the download test．
This test downloads＂test．dat＂from the program server set in the initial setting，to ensure all items have been set appropriately．If the download test fails，check the setting items again according to the error message．

When the test finished successfully，the communication speed and estimated download time are displayed as shown below．Draw upon the data to decide［Reception timeout］．


If the download test fails，response error code sent from the server is displayed as follows．There may be input errors．Check the initial setting again．

|  | ［－可 |
| :---: | :---: |
|  | 硒 |
|  |  |
| Mytam ${ }^{\text {a }}$ |  |
| Download test |  |
| Can＇t download from program senver Response Error Code from server［550］ |  |
| Please change the initial setting accordingly |  |
| Intal Setting |  |
| Bock |  |
| O20ne | Hiocd incracet |


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## [5] Mail Remote Notification System

## 1. What is the Mail remote notification system?

Mail remote notification system allows to acquire machine data, that have been available as "List Output Mode" in 36 mode from copier, through internet mail ( E -mail). This function is achieved without visiting customer site and printing on paper if the simple keyword is e-mailed.

## 2. Operation environment

Following conditions should be satisfied in order to use mail remote notification system. The function works during JAM, SC or Low power mode, but does not work during shut-off. However, the sent mail does not disappear and the copier process the mail after next starting up. During low power mode, the machine operation is as usual.
A. The mail server *1 that allows copier to receive mail in POP3 or IMAP protocol. (It is preferred that mail server can receive external mail and service constantly.)
B. The mail server *2 that allows copier to transmit mail in SMTP protocol. (It is preferred that mail server can send external mail and service constantly.).
C. Mail remote notification system disabling conditions on copier are as follows.
(1) Main power switch is OFF.
(2) Sub power switch is OFF.
*1 qpopper, Lotus Notes, Mercury Mail etc. Assign one account per one copier. It can be the same machine to the SMTP server. "Mail remote notification system" corresponds to "POP before SMTP".
*2 Sendmail 8.9, qmail, Lotus Notes, Mercury Mail etc. It can be the same machine to the receiving server.
3. Initial setting

In order to use Mail remote notification system, settings such as network parameter on copier and account registration on mail server are necessary.
A. Setting on operation panel

In order to connect the copier main body to network, IP address of the copier should be set on operation panel. If it is already set, please go to "B. Setting on Web.
a. Procedure

1. Select [Key operator mode] on operation panel.
2. Select [1. System initial setting].
3. Select [3. IP address setting].
4. Input [IP address], [Subnetmask] and [Gateway address]*1.
5. Turn OFF/ON power switch of copier.
*1 System administrator usually assigns IP address and network related setting to copier. Please ask system administrator for details.

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## B. Setting on Web

Next, input setting for mail server from Web browser. Please use PC*2 connected to the network in order to use Web browser.
*2 Prepare PC; borrow the customer's one or bring notebook computer.
Note1: No blank space should be entered for any column. Following characters cannot be used for the Email address.
() <> ;: : $\ddagger$ "[]

When the error message is displayed on the web browser, correct the input error following to the
Note2: Web design is subject to change without notice.
(1) How to set
a. Procedure

1. Start up Web browser *1.
2. Type IP address of the copier you input to the [A. Setting on operation panel]. When accessing Web, the [main page] (see upper figure in next page) is displayed.
*1 If proxy is set on Web browser, it may not possible to access web utilities of copier. Please ask system administrator for details. We recommend to use Internet explorer or Netscape as the Web browser. Do not perform setting from the two or more browsers concurrently.


Copyright © 2000 GoAhead Software, Inc. All Rights Reserved. Copier Web utilities main page

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3. In [Main] page, click [Environment Setup] button and display [Environment setup log in] page.


## Environment setup log in page

4. Input key operator password in [Environment setup log in] page, then click [Apply]. [Environment set up] page is displayed. Then click [E-Mail transmission setting].
Even key operator password set "0000" in 25-mode setting, input "0000".


Environment setup page

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5. Set the transmission setting.

In order to use Mail remote notification system, registration of E-mail address of manager (machine administrator), and sending (SMTP) server input is mandatory.

| Manager Address *1 | To specify E-mail address of machine manager. <br> The e-mail address to notify error from SMTP. |
| :--- | :--- |
| DNS Server IP Address | Input as needed. If not needed, leave it blank. |
| Time difference *1 | The send time of mail is calculated referring this value. <br> Input the time difference from UTC within the range -1200 (-12h00min) to <br> +1200 (+12h00min). <br> If setting is not made, it is +0000 (the same as UTC). <br> For example, the time difference in New York is -5 hours, - 500 is input. |
| Sending mail (SMTP) sever *1 | The IP address of SMTP sever. |
| Condition Informing Address *1 1It is for mail transmission system. *2 <br> You may leave it blank when mail transmission system is not used. |  |
| E-Mail Transmission *1 | It is for mail transmission system. *2 <br> You may leave it blank when mail transmission system is not used. |

*1 The same setting can be set on LCD of the copier. But do not set concurrently from web browser and Web.
*2 Please see the "INSTRUCTION MANUAL" of copier if use the mail transmission system.


E-Mail transmission setting page

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6. Click [Apply] button to finish input.

(2) Test mail sending

Click [Sending test] button and then a test mail is sent to SMTP server. Test mail is sent to [Manager address] set on Step5. Click [Sending test] to display result of the test mail. If it is failed, please re-confirm the setting following to error message.

## a. Procedure

1. Set the reception setting.

In the [Extension for maintenance] column at the bottom of the page, input the password to change the mode then click the initial setting.
Use the password for changing modes.


Extension for maintenance page (for customer engineer)

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The records of sent and received mails listed on mail log on the [Extension for maintenance] page are the latest 10 mails. Even the main power switch is turned OFF, the communication is logged and kept though there are some restrictions.


E-Mail reception setting page

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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2. Set the e-mail reception screen based on the following.

| Enable E-mail notification | Select [Yes] to use Mail remote notification system. <br> Default is [No]. |
| :--- | :--- |
| Interval between fetching mails | Interval between checking mail on receiving mail server from copier. The <br> interval can be set within the range from 1 min. to 60 min. <br> Usually, set around 10 min. considering load for network. |
| Receiving mail server | The IP address of receiving mail server. |
| Kind of mail spool | Select [POP3] or [IMAP]. Default is [POP3]. |
| User name on the server *1 | The account name for copier assigned on receiving mail server. |
| Password *2 | The password for the above user name. |
| E-Mail Address of this copy <br> machine | E-mail address of the copier. <br> Usually, the name is [User name@receiving mail server name]. |
| Nickname *3 | The name added to the mail subject sent from the copier. <br> It can be blank. |
| CE Password *2 | Input password used for the "Subject" of the mail sent to the copier. <br> The copier uses this password for security check. |
| Also Notice to the administrator (CC mail) |  |
| - No | Only illegal mails |
| - All mails | Default (Do not send the e-mail to the administrator)Specify whether to transfer mail in following conditions; When the mail <br> received by copier does not match to the registered password or the mail <br> size is 10 k-byte or larger. |
| Transfer all sending mails from Mail remote notification system. |  |
| Administrator E-Mail address | Input address for the transfer if above [Only illegal mail] or [all mails] is <br> selected. |
| Announce delay time in reply <br> mail *4 | Select whether to contain the time difference from CE`s stransmission and <br> copier reception on the mail. <br> Default is [No]. |
| Enable POP (IMAP) before |  |
| SMTP | Select whether SMTP server transmits the mail after POP (IMAP) server <br> attests. <br> Default is [Yes]. |
*1 Consult system administrator and create mail account for copier on receiving mail server.
*2 No echo back from the password.
*3 Use it as identifier, when managing multiple copiers.
*4 Use it to check the copier. is turned ON or not. If the time of the copier or the mail application software is not set correctly (including time difference), wrong time is described. In that case, select [ No ].
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3. Click "Apply" to finish input.
4. Test mail sending and receiving.

Click [Sending and receiving test] button and then sending and receiving tests are performed by one transaction. It checks whether the sent mail is correctly received. Click [Sending and receiving test] to display result of the test. If it is failed, please re-confirm the setting following to error message.

| Sending mail test | Mail sending test is performed to SMTP server. <br> Test mail is sent to [E-Mail Address of the copy machine] set on Step2. |
| :--- | :--- |
| Receiving mail test | Receiving test from receiving mail server is performed. <br> Test mail is received by [E-Mail Address of the copy machine] set on Step2. |

5. Turn OFF/ON power switch of copier.

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## 4. How to use the Mail remote notification system

## A. Function

CE can use following functions of Mail remote notification system by e-mailing simple keyword to copier. CE can receive the data of the desired copier data list by the e-mail.

- JOB memory list
- User management list
- Font pattern list
- Machine management list 1
- Adjustment data list
- Parameter list
- E.K.C. management list
- Machine management list 2
- Counter list
- Pixel ratio data list

In order to use above function, the simple keyword (command) must be sent by e-mail. The following table shows the command and options.

| Command | Options | Explanation | Minimum |
| :---: | :---: | :---: | :---: |
| GETLOG | [List output] | The [List output] specified by the following is returned by mail. | G |
|  | JOB | [JOB memory list] | J |
|  | USER | [User management list] | U |
|  | FONT | [Font pattern list] | F |
|  | MANAGEMENT | [Machine management list 1] | M |
|  | ADJUSTMENT | [Adjustment data list] | A |
|  | PARAMETER | [Parameter list] | P |
|  | EKC | [EKC management list] | E |
|  | 2MANAGEMENT | [Machine management list 2] | 2 |
|  | COUNTER | [Counter list] | C |
|  | PIXEL | [Pixel ratio data list] | PI |
|  | ALL | All of above list data. | AL |
|  | Not specified | Edited [Counter list] for the cellular phone display. |  |
| CHPASS | [OldPasswd] [NewPasswd] | To change the password used to certify mail. | C |
|  | [OldPasswd] | Specify current password |  |
|  | [NewPasswd] | Specify new password |  |
| HELP | Not specified | Help mail explaining usage of the above commands is sent. | H |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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B. Send mails

The example of the mail containing the command to the copier is shown. The command and option on the mail are recognized by the top letters without distinction between capital and small letters. Accordingly, not all letters of the command must be typed. It is recognized by the minimum letters in the above table *1. When sending mail to the copier, please note followings.

## Note:

- Mail software on any OS, handy terminal, free-mail using browser can be used without any difference.
- When sending mail on mail software, be sure to use text mode.
(Mail in HTML mode cannot be handle properly.)
- As for the reception on mail software, the desirable maximum displayable letters per one line is 128 and over (single-byte).
(The length of the one line reaches to 128 letters in the part of the data list mail. Accordingly, mail may not be easily seen on the cellular phone or other mobile devices.)
- Put minimum one space or TAB*2 between the command and option on the mail.
- Use only single-byte alphanumeric character (ASCII character) for the command on mail. Otherwise, an error mail, [Command Not Found], is returned.
Type command from the beginning of the line. If the line starts with blank or TAB, the line is ignored.
- Maximum number of commands that can be contained in one mail is 10 . The eleventh and onwards commands are ignored.
- Do not attach file to the mail sent to the copier. Depending on file size, it is handled as illegal mail.
- Do not attach signature to the mail sent to the copier. If automatic attachment of the signature is already set to the mail software, change the setting not to attach the signature. The signature is regarded as command and error mail may be returned.
- While copier is sending or receiving the mail, if the power switch of the copier is turned OFF or list output is performed on the copier, two mails may be returned.
- The maximum number of the mails that copier receives from the mail server is 5 per one time. If the mail server has more received mails at a time, remaining mails are processed after the [interval between fetching mails].
*1 Example: All of G, GE, GET, GETL, GETLO, GETLOG equal to specify GETLOG.
*2 Return cannot be used.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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(1) Send GETLOG command

Following should be described in the sending mail.

- Subject: Input "CE password" set in reception setting.
- To: Input E-mail address of the copier.
- Body: Input command.
a. Example of mail requesting counter list

b. Example of mail requesting counter list*1

*1 Language of the returned mail is English only.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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## c. When option is not specified

GETLOG command without option is specified, Counter list for the cellular phone display is returned.
Sending mail [GetLog]
Example of returned mail

d. To receive multiple data list

Data lists in reply to GETLOG command are separately returned by mails; one list per mail. If the same list is requested twice or more in a mail, the list is returned only once.
When followings are described in a mail, both counter list mail and machine management list 1 mail are returned.
[GetLog Counter]
[GetLog Management]
When the commands are written in one line continuously, Management (the later command) is ignored and only counter list (the first command) is returned.
[GetLog Counter Management]
e. When unrecognizable option is specified.

Sending mail
[GetLog Log]
Returned mail
[Option Not Found $\rightarrow$ GetLog Log]

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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## (2) Send CHPASS command

The sending mail password described on the subject can be changed remotely. Specify 20 or less letters to [OldPasswd] and [NewPasswd]. Use ASCII characters except space.
Password cannot be changed by mail if you don't remember the old password. Change the [CE password] from the browser, explained in Chapter 2.
a. Example of correct password change

In this case, old password [U-BIX] is changed to new password [Sitios].
Sending mail
[ChPass U-BIX Sitios]
Returned mail
[SE's Password was changed successfully.] $\rightarrow$ [New Password [Sitios]]
When the password is changed, use [NewPasswd] from the next mail. When the mail is sent with [OldPasswd], it is treated as illegal mail.
b. Example of invalid password change

Old password [U-BIX] is changed to new password [Sitios].
Sending mail
[ChPass Sitios U-BIX]
Returned mail
[Old Password is Invalid.] $\rightarrow$ [ChPass Sitios U-BIX]
Then, password was not changed. Accordingly, the password is unchanged and [U-BIX].
Sending mail
[ChPass Sitios]
Returned mail
[Violation on format by new password.] $\rightarrow$ [ChPass Sitios]
When the new password is blank, password is not changed.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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## (3) Send HELP command

The manual describing above usage of the commands is returned by mail. Use this function when you forget how to use command and option.
Sending mail [Help]
Returned mail


## 5. Disabling system

In order to disable Mail remote notification system, in Mail reception setting, select [No] for the "Enable EMail notification" and then click [Apply] button.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $2-29$ | ADDITION |

## [6] Internet ISW using Web utility

## 1. Function

Using the copier's web utility, just by clicking on the browser *15, customer engineer can let the copier automatically download programs from the program server and rewrite its own programs.
The boards of which programs can be rewritten are the same as those of [Internet ISW using E-mail remote notification system].

## 2. How to use

a. Going to Internet ISW page

The same as instructed in Chapter2, go to the [Internet ISW] page on the Web browser.


Next to each board name, the program version is displayed.
*15: Usually, it is not possible to access company-inside copier from outside exceeding firewall.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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## b. Performing ISW

From the [ISW] items, select a board to ISW and check the box. When specifying a name of file to download, type the name in the text box of [File name]. When no file name is specified, the following files are acquired from the program server address set beforehand.

| IO | bootl0.bin | C0 | bootC0.bin | N1 | bootN1.bin |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I1 | bootl1.bin | C1 | bootC1.bin | (V1) | (bootV1.bin) |
| I2 | bootl2.bin | C2 | bootC2.bin |  |  |
| I3 | bootl3.bin | C3 | bootC3.bin |  |  |
| 14 | bootl4.bin | C4 | bootC4.bin |  |  |
| I5 | bootl5.bin | C5 | bootC5.bin |  |  |

When the above input completes, click [ISW].
c. Starting ISW

When ISW starts, the following screen appears. If there is any input error, click [Back] and reset the item according to the message in red.


## ISW execution screen

When ISW completes successfully, the copier automatically reboots.
If you click [Check status], you can check the current ISW status.
If you click [Cancel], you can stop the ISW only while program is being downloaded.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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## d. Checking ISW status



## ISW status check screen

This screen shows the current performance or error. The display items are as follows.
■ ISW communicating

- ISW rewriting
- Successfully completed *16

■ Canceled due to communication error

- Canceled due to communication timeout
- Canceled due to writing error
e. Ending ISW

When ISW completes and copier reboots, ensure that the program version is upgraded on the [Internet ISW main screen].
*16: Copier reboots after ISW completes normally. Do not click [Redraw] on the browser.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
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## [7] Internet ISW by operation panel

## 1. Function

It is possible for service technicians to download necessary program from the program server by the copier operation panel to automatically rewrite the program.
The PC board for the program to be rewritten is the same for "Internet ISW by mail remote communication system".
2. Operation
a. Procedure

| Step | Operation |
| :---: | :--- |
| 1 | Enter the 25 mode. |
| 2 | [Memory setting mode menu Screen] <br> Press " 团 ISW" key. |
| 3 | [ISW mode menu Screen] <br> Press "INTERNET ISW" key to select the program to execute the ISW. <br> Note: If "INTERNET ISW" key is not highlighted, the program will function as normal ISW. <br> The "Collective" key enables all the items displayed below the key to be rewritten. |
| 4 | [Internet ISW mode menu Screen] <br> Pressing "FILE NAME" key displays "File name entry Screen". Specify the name of the file <br> to be downloaded (Max. 20 characters) and press "OK" key to go back to "Internet ISW <br> mode menu Screen". <br> Pressing "File auto select" key displays "AUTO" in the file name entry column to accept pre- <br> determined file name. |
| 5 | Press "Start" key. <br> Internet ISW rewriting is started. <br> While the downloading is beingexecuted, pressing "STOP" stops the downloading but does <br> not stop the rewriting operation. And, turning OFF SW2 (sub power supply) cannot be <br> accepted. |
| Note:Take care not to turn OFF SW1 (main power supply) of the copier while the internet <br> ISW rewriting is being performed. <br> If SW2 (sub power supply) is turned OFF while the rewriting is being executed, the <br> SW2 is turned to OFF status after the rewriting has been completed. <br> 6[Rewriting confirmation Screen] <br> Pressing "CONTINUE" key to display "ISW mode menu Screen". |  |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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## 3. Errors

| Error code | Classification | Contents |
| :--- | :--- | :--- |
| Xxx | Local error | Rewriting error (which is generally the same as ISW error) |
| 100 |  | Cannot connect to the network |
|  |  | File error |
| 101 | HTTP error | After communication protocol is set up at HTTP and the con- <br> nection to network is finished, the server error is returned from <br> the server. |
| $5 x x$ | FTP error | After communication protocol is set up at FTP and the connec- <br> tion to network is finished, the server error is returned from the <br> server. |

* Error codes for FTP and HTTP are general protocol-specified errors.

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## [8] Precautions for use

## 1. Prior announcement to administrator

When performing the Internet ISW, be sure to contact the copierfs administrator or the like and get his/her agreement beforehand.
Perform ISW in condition that the copier is not being used.
If the copier is being used (a job is being processed), the Internet ISW is not performed.
2. If power failure occurs during data rewriting

While ISW rewriting is in progress *17, the operation panel and sub power switch are locked. However, if the main power goes down due to power failure or other, the copier becomes unable to start up, the same as remote ISW. *18
This is only the problem on rewriting the image processing board. Even if errors occur on rewriting other boards, the boards can be overwritten again with the Internet ISW.
If the copier becomes unable to start for the above reason, go to the copierfs site and rewrite the program using the ISW tool (ISWTrans).
3. ISW of multiple programs

It is not possible with the Internet ISW to ISW several programs concurrently. Always perform ISW one by one. If several programs must be rewritten at the same time, perform ISW from board of higher priority.
*19

| Priority 1 | FNS board (N1) |
| :--- | :--- |
| Priority 2 | Print control board (C1-C5), (Videol/F board (V)) |
| Priority 3 | Print control board (C0) |
| Priority 4 | Image processing board (I1-I5) |
| Priority 5 | Image processing board (I0) |

When rewriting several programs, SC may occur during rewriting intervals between programs.
However, such SC will clear when all the subject programs are rewritten.

## 4. If ISW fails in low power mode

If ISW fails due to errors in program download, data check, and so on, the copier recovers into normal mode.
Only in low power mode, the copier reboots when ISW fails.
*17: Rewriting takes maximum one minute.
*18: No problem is cased by power failure during program downloading process.
*19: In case of the Internet ISW using the E-mail remote notification system, the sequence of transmitted ISW designating mails and mails received by copier may change. Transmit multiple mails while ensuring reception of completion mail or putting enough intervals.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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# KRDS 

④ Refer to the "KRDS Setup Manual".

4
SERVICE

## Main Precautions for Maintenance

1. Points to be confirmed before maintenance
Prior to maintenance, talk to the operator concerning the symptoms of the machine to help determine the corrective maintenance action that must be taken.
2. Copy sample

Make copy samples at the start and end of maintenance to compare images.
3. Drum
a) Never expose the drum to sunlight. Also avoid exposing the drum to indoor light as much as possible.
When the drum unit or drum is remove from the machine, ensure that it is covered with a drum cover.
b) When replacing the drum, toner guide roller, or cleaning blade, refer to the section that provides instruction for removing and installing a cleaning blade.
4. After replacing the drum and developer, refer to the List of Adjustments to determine the adjustments that must be made following the replacement.
5. After completing maintenance work, reset the PM counter using the 25 mode.
6. When replacing the fixing unit cleaning web, developer, and drum, reset the fixing unit cleaning web counter using the 36 mode.
7. When replacing the toner cartridge, wait until the toner supply LED on the operation panel flashes before the replacement.
$\triangle$ Caution:Turn the main power switch (SW1) off and pull out the power cord from the wall outlet prior to maintenance.

## SERVICE SCHEDULE

## 4. [1]

1] Service Schedule

|  | Service item | Number of copies |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 0 | 25 | 50 | 75 | 100 | 125 | 150 | 1752 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 |  |
| Main | Maintenance | Every 250,000 copies |  | $\bigcirc$ | - | $\bigcirc$ | - | - | - | $\bigcirc$ | - | - | - | $\bigcirc$ | - | $\bigcirc$ | - | - | - | - |  | $\bigcirc$ |  |  |
|  | Periodic check (I) | Every 500,000 copies |  |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | - | - | $\bigcirc$ |  | - |  |  |  |
|  | Periodic check (II) | Every 1,000,000 copies |  |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  |  |  |
|  | Periodic check (III) | Every 2,000,0000 copies |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |
|  | Periodic check (IV) | Every 2,500,000 copies |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  |  |  |  |  |
| RADF | Maintenance | Every 250,000 copies |  | - | - | - | - | - | - | - | $\bigcirc$ | - | $\bigcirc$ | O |  | $\bigcirc$ |  | - |  |  |  | $\bigcirc$ |  |  |
| $\begin{aligned} & \text { DF-316/- } \\ & 322 \end{aligned}$ | Periodic check (I) | Every 500,000 copies |  |  | $\bigcirc$ |  | - |  | $\bigcirc$ |  | - |  | - |  | $\bigcirc$ |  | - |  | $\bigcirc$ |  | $\bigcirc$ |  |  |  |
|  | Periodic check (II) | Every 1,500,000 copies |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  | $\bigcirc$ |  |  |  |
|  | Maintenance | Every 250,000 copies |  | - | - | - | - | - | - | - | $\bigcirc$ | $\bigcirc$ | - | - | $\bigcirc$ | $\bigcirc$ | - | $\bigcirc$ |  | $\bigcirc$ |  | - |  |  |
| $\begin{array}{\|l} \text { FS-110/ } \\ 210 \end{array}$ | Periodic check (I) | Every 1,000,000 copies |  |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | - |  |  |  |  |  |
|  | Periodic check (II)*1 | Every 2,500,000 copies |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  |  |  |  |  |
| FNS | Maintenance | Every 250,000 copies |  | $\bigcirc$ | - | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - | $\bigcirc$ | $\bigcirc$ |  | $\bigcirc$ |  |  |
|  | Periodic check (I) | Every 2,500,000 copies |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & \text { SF } \\ & \text { SF-101 } \end{aligned}$ | Maintenance | Every 250,000 copies |  | - | - | - | - | - | $\bigcirc$ | - | $\bigcirc$ | - | - | - | - | - | - | - | - | - | - | $\bigcirc$ |  |  |
| LCT | Maintenance | Every 250,000 copies |  | - | - | - | - | - | - | - | - | $\bigcirc$ | - | - | $\bigcirc$ | - | - | - |  |  |  | - |  |  |
| LT-4021412 | Periodic check (I) | Every 1,000,000 copies |  |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  |  |  |
|  | Periodic check (II) | Every 4,000,000 copies |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |
|  | Maintenance | Every 250,000 copies |  | $\bigcirc$ | - | - | - | - | $\bigcirc$ | - | - | - | - | - | - | $\bigcirc$ |  | - |  | - |  | $\bigcirc$ |  |  |
|  | Periodic check (I) | Every 500,000 copies |  |  | - |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  |
|  | Periodic check (II) | Every 1,000,000 copies |  |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  | $\bigcirc$ |  |  |  |  |  |
|  | Periodic check (III) | Every 3,000,000 copies |  |  |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  |  |  |
| PK <br> PK-110/120 <br> PZ | Maintenance | Every 250,000 copies |  | - | - | - | - | - | $\bigcirc$ | - | - | - | - | - | - | - | - | - |  | - |  | - |  |  |
| PZ | Maintenance | Every 250,000 copies |  | - | - | - | - | - | - | - | - | - | - | - | $\bigcirc$ | - | - | - | $\bigcirc$ | - |  | $\bigcirc$ |  |  |
| PL-108/09 | Periodic check (I) | Every 3,000,000 copies |  |  |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |  |  |  |  |  |

*1 Periodic check (II) for FS-110/210 is applied for old type only.

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## [2] Maintenance Items

1. Main body (Every 250,000 copies)

| NO | Classification | Service item |  | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | $\begin{array}{\|c} \hline \text { Inspe- } \\ \text { ction } \end{array}$ | $\begin{array}{\|c\|} \hline \text { Lubric } \\ \text {-ation } \\ \hline \end{array}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Preparation | (1) Image check |  |  |  |  | $\bullet$ |  |  |  |
| 2 | Drum unit | (1) Charging cont | $\begin{aligned} & \text { plate } \\ & 56 \mathrm{AA} 2503^{*} \end{aligned}$ | 1 |  |  |  | $\bullet$ |  |
|  |  | (2) Charging wire | 56AA2509* | 1 |  |  |  | - |  |
|  |  | (3) Charging coro plate and perip PCL) | unit (back eral section, |  | $\bullet$ |  |  |  | Drum cleaner/ waste/blower brush |
|  |  | (4) Charger clean | $\begin{aligned} & \text { 56AA2540* } \end{aligned}$ | 1 |  |  |  | $\bullet$ |  |
|  |  | (5) Charger slide | ock 56AA2538* | 1 |  |  |  | $\bullet$ |  |
|  |  | (6) Charger clean | block /U 56AA-253* | 1 |  |  |  | $\bullet$ |  |
|  |  | (7) Resin ring ( $¢ 2$ | 45AA2040* | 1 |  |  |  | - |  |
|  |  | (8) Charger clean | g block/L 56AA-254* | 1 |  |  |  | $\bullet$ |  |
|  |  | (9) Drum cartridge the developing trol sensor, se | ottom plate of unit, toner conaration claw |  | $\bullet$ |  |  |  | Blower brush/cleaning pad/A drum cleaner is used only when cleaning a toner control sensor. |
|  |  | (10) Toner collectio | screw A |  | $\bullet$ |  |  |  | Blower brush/cleaning pad |
|  |  | (11) Toner guide roller | 56AA-213* <br> (7155/7165) <br> $56 \mathrm{QA}-213^{*}$ <br> $(7255 / 7272)$ | 1 |  |  | ${ }_{* 1}$ | $\bullet$ | Electricity lubricant |
|  |  | (12) Cleaning bla blade setting | (36 mode mode) 56AA2010* | 1 |  |  |  | $\bullet$ |  |
| 3 | Developing unit | (1) Developing bias armature |  |  | $\bullet$ |  |  |  | Blower brush/cleaning pad |
|  |  | (2) Developer ( 25 mode counter resetting) |  | 1 |  |  |  | $\bullet$ |  |
|  |  | (3) Developing unit |  |  | $\bullet$ |  |  |  | Blower brush/cleaning pad |

Note: *1 After replacing the toner guide roller, be sure to apply an electricity lubricant on the edge of the guide roller shaft (on power supply pin side).

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| NO | Classification |  | Service item |  | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Cleaning | $\begin{aligned} & \text { Inspe- } \\ & \text { ction } \end{aligned}$ |  | $\begin{array}{\|l\|l\|} \hline \text { Lubric } \\ \text {-ation } \end{array}$ | $\begin{array}{\|c\|c\|} \text { Replace } \\ \text {-ment } \end{array}$ |  |
| 4 | Transfer / separation corona |  |  |  | (1) Transfer separ (front and rea rail, separatio entrance guid protection she | on corona unit lock), guide bridge, pate, lightning back plate |  | $\bullet$ |  |  |  | Blower brush/cleaning pad/cotton swab/ drum cleaner |
|  |  |  | (2) Discharge wire | 56AA2609* | 3 |  |  |  | $\bullet$ |  |
|  |  |  | (3) Transfer clean | $\begin{aligned} & \hline \text { assembly } \\ & 56 \mathrm{AA}-264^{*} \end{aligned}$ | 1 |  |  |  | $\bullet$ |  |
|  |  |  | (4) Separation cle bly | ing assem-56AA-267* | 1 |  |  |  | $\bullet$ |  |
|  |  |  | (5) Resin ring (\$2) | 45AA2040* | 2 |  |  |  | $\bullet$ |  |
|  |  |  | (6) Transfer press rubber | $55 V A 2615^{*}$ <br> $(7155 / 7165)$ <br> $56 A A 1783^{*}$ <br> (7255/7272) | 3 |  |  |  | $\bullet$ |  |
|  |  | Toner supply | (1) Cartridge hold | member |  | $\bullet$ |  |  |  | Cleaning pad |
|  | Conveyance unit |  | (1) Conveyance section upper sur-face |  |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  |  | (2) Conveyance belt |  |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  |  | (3) TSL cover member |  |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | Registration | (1) Paper dust removing brush |  |  | $\bullet$ |  |  |  | Cleaningpad/blower brush |
|  |  |  | (2) 2nd paper feed roller |  |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 4 | Drive section and filter |  | (1) Ozone filter K | $\begin{array}{r} \text { 55FA7301*} \\ (7155 / 7165) \end{array}$ | 1 |  |  |  | - |  |
|  |  |  | (2) Ozone filter/M | $\begin{gathered} \text { 56QA1059* } \\ (7255 / 7272) \end{gathered}$ | 1 |  |  |  | $\bullet$ |  |
|  |  |  | (3) Ozone filter/S | $\begin{gathered} \text { 56QA1057* } \\ (7255 / 7272) \end{gathered}$ | 1 |  |  |  | - |  |
|  |  |  | (4) Developing suction filter | $56 \mathrm{AA}-735^{*}$ <br> $(7155 / 7165)$ <br> $56 \mathrm{QA} 7320^{*}$ <br> $(7255 / 7272)$ | 1 |  |  |  | $\bullet$ |  |
|  | 9 | Paper exit unit | (1) Sensor (one section) |  |  | $\bullet$ |  |  |  | Blower brush |
|  |  |  | (2) Roller (two sec |  |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |


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| NO | Classification | Service item | $\left\|\begin{array}{c} \text { Number } \\ \text { of parts } \\ \text { replaced } \end{array}\right\|$ | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{array}{\|c} \text { Replace } \\ \text {-ment } \end{array}$ |  |
| 10 | ADU | (1) Roller cleaning |  | $\bigcirc$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (2) Reverse/exit roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (3) ADU reverse roller |  | $\bigcirc$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (4) ADU conveyance roller /1-4 |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) ADU registration roller |  | $\bigcirc$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (6) Sensors |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (7) Gate sensor (two points) |  | $\bigcirc$ |  |  |  | Blower brush |
|  |  | (8) ADU horizontal conveyance sections (four points) |  | $\bigcirc$ |  |  |  | Blower brush |
|  |  | (9) ADU reverse section (one point) |  | $\bigcirc$ |  |  |  | Blower brush |
|  |  | (10) Gears |  |  |  | - |  | Plus guard No. 2 |
| 11 | Paper feed section | (1) Sensor (three points/tray) |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (2) Gears (double feed prevention section) |  |  |  | - |  | Plus guard No. 2 |
|  |  | (3) Conveyance/driven roller (paper feed) |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (4) Feed roller/paper feed conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) Double feed prevention roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 12 | By-pass feed section | (1) Sensor (four points) |  | - |  |  |  | Blower brush |
|  |  | (2) Gears |  |  |  | $\bullet$ |  | Plas guard No. 2 |
|  |  | (3) Section peripheral of the bypass feed unit |  | $\bigcirc$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (4) Feed roller/paper conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) Double feed prevention roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 13 | Scanner section | (1) Original glass (including slit glass) |  | $\bigcirc$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (2) Exposure lamp |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (3) Reflector |  | - |  |  |  | Cleaning pad |
|  |  | (4) Lens |  | $\bigcirc$ |  |  |  | Blower brush/cleaning pad |
|  |  | (5) 1st to 3rd mirrors |  | $\bigcirc$ |  |  |  | Blower brush/cleaning pad |
|  |  | (6) APS sensor |  | - |  |  |  | Blower brush |
|  |  | (7) Photo interrupter |  | - |  |  |  | Blower brush |
|  |  | (8) Optical guide rail |  | - |  |  |  | Cleaning pad |
| 14 | Writing section | (1) Dust-proof glass (external) |  |  | $\bullet$ |  |  | Blower brush/cleaning pad |


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| NO | Classification | Service item | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | $\begin{gathered} \text { Inspe- } \\ \text { ction } \\ \hline \end{gathered}$ | Lubric -ation | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 15 | Fixing unit | (1) Fixing upper roller |  | $\bullet$ |  |  |  | Roller cleaner/ cleaning pad |
|  |  | (2) Fixing lower roller |  | $\bullet$ |  |  |  | Roller cleaner/ cleaning pad |
|  |  | (3) Fixing claw (L) |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (4) Paper exitr roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) Paper exit conveyance roller (right) and guide rib |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (6) Fixing unit entrance and exit guide plate |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (7) Fixing temperature sensor /2 |  | - |  |  |  | Blower brush/paper |
|  |  | (8) Decurler |  | - |  |  |  | Cleaning pad |
|  |  | (9) Fixing gear |  |  |  | - |  | Moly therm grease |
|  |  | (10) Fixing web unit ( 25 mode counter resetting) <br> 56AA-543* | 1 |  |  |  | $\bullet$ |  |
|  |  | (11) Fixing claw (U) <br> 56AA5427* | 6 |  |  |  | $\bullet$ |  |
|  |  | (12) Heat insulating sleeve |  |  |  | - |  | Tri-flow |
| 16 | Vertical conveyance | (1) Horizontal conveyance roller | 2 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (2) Sensor | 5 | $\bullet$ |  |  |  | Blower brush |
| 17 | Final check | (1) W.U.T. check |  |  | $\bullet$ |  |  |  |
|  |  | (2) Peripheral and exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (3) Image and paper through check |  |  | $\bullet$ |  |  |  |
|  |  | (4) PM counter resetting (25 mode) |  |  | $\bullet$ |  |  |  |


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2. RADF [DF-316/322] (Every 250,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{array}{\|l} \hline \text { Clea- } \\ \text { ning } \end{array}$ | $\begin{array}{\|c} \begin{array}{c} \text { nspe } \\ \text { ction } \end{array} \\ \hline \end{array}$ | Lubric -ation | Replace -ment |  |
| 1 | Preparation | (1) Paper through check |  |  | $\bullet$ |  |  |  |
| 2 | Paper feed section | (1) Size detection sensor/1 | 1 | $\bullet$ |  |  |  | Blower brush |
|  |  | (2) Size detection sensor/2 | 1 | $\bullet$ |  |  |  | Blower brush |
|  |  | (3) Registration sensor | 1 | - |  |  |  | Blower brush |
|  |  | (4) Feed roller | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) Paper feed roller rubber | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (6) Double feed prevention roller rubber | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (7) Cleaning pad | 1 | $\bullet$ |  |  |  | Blower brush |
|  |  | (8) Registration roller | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 3 | Conveyance section | (1) Read sensor | 1 | - |  |  |  | Blower brush |
|  |  | (2) Skew sensor (F) | 1 | $\bullet$ |  |  |  | Blower brush |
|  |  | (3) Skew sensor (R) | 1 | - |  |  |  | Blower brush |
|  |  | (4) Double side registration sensor | 1 | - |  |  |  | Blower brush |
|  |  | (5) Read roller (F) | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (6) Read roller (R) | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (7) Platen guide | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (8) Reverse conveyance roller/1 | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (9) Reverse conveyance roller/2 | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 4 | Paper exit section | (1) Paper exit roller | 1 | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 5 | Final check | (1) Paper through check |  |  | $\bullet$ |  |  |  |
|  |  | (2) Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |


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3. FNS [FS-110] (Every 250,000 copies)

4

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Preparation | (1) Paper through check |  |  | - |  |  |  |
| 2 | Conveyance section | (1) Conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (2) Paper exit roller/A (sponge roller) $122 \mathrm{H} 4825^{*}$ | 10 |  |  |  | $\bullet$ |  |
|  |  | (3) Cleaning of area around paper exit roller/A |  | $\bullet$ |  |  |  |  |
|  |  | (4) Conveyance roller/4 (sponge roller) 13QE4531* | 4 |  |  |  | $\bullet$ |  |
| 3 | Drive section | (1) Main drive unit |  |  | $\bullet$ | (-) |  | Plus guard No. 2 *1 |
|  |  | (2) Tray up/down unit |  |  | $\bullet$ | ( $)^{\text {) }}$ |  | Plus guard No. 2 *1 |
|  |  | (3) Shift drive unit |  |  | $\bullet$ | (-) |  | Plus guard No. 2 *1 |
|  |  | (4) Paper exit drive unit |  |  | $\bullet$ | (-) |  | Plus guard No. 2*1 |
|  |  | (5) Staple unit |  |  | $\bullet$ | (-) |  | Plus guard No. 2 *1 |
| 4 | Stapler unit | (1) Staple cartridge 12QRK001* | 2 |  | $\bullet$ |  | (-) | 5,000 staples/cartridge replace as necessary |
| 5 | Exterior | (1) Exterior cleaning |  | $\bullet$ |  |  | (-) | Drum cleaner/cleaning pad |
| 6 | Final check | (1) Paper through check |  |  | $\bullet$ |  |  | Stapler positioning jig *2 |

*1 If abnormal sound is heard due to insufficient oil, lubricate it.
*2 Check to see that the upper and lower positions are properly set.

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4．FNS［FS－210］（Every 250，000 copies）

| NO | Classification | Service item | Number of parts replaced | Implementation classifica－ tion |  |  |  | Materials／tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Clea－ ning | Inspe－ ction | Lubric －ation | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Preparation | （1）Paper through check |  |  | － |  |  |  |
| 2 | Conveyance section | （1）Conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner／clean－ ing pad |
|  |  | （2）Paper exit roller／A（sponge） $122 \mathrm{H} 4825^{*}$ | 10 |  |  |  | $\bullet$ |  |
|  |  | （3）Cleaning of area around paper exit roller／A |  | $\bullet$ |  |  |  |  |
|  |  | （4）Conveyance roller／4（sponge） 13 QE 4531 | 4 |  |  |  | $\bullet$ |  |
| 3 | Drive section | （1）Main drive unit |  |  | $\bullet$ | （－） |  | Plus guard No．2＊1 |
|  |  | （2）Tray up／down unit |  |  | $\bullet$ | （ $)^{\text {）}}$ |  | Plus guard No．2＊1 |
|  |  | （3）Shift drive unit |  |  | $\bullet$ | （－） |  | Plus guard No． 2 ＊1 |
|  |  | （4）Paper exit drive unit |  |  | $\bullet$ | （－） |  | Plus guard No．2＊1 |
|  |  | （5）Staple unit |  |  | $\bullet$ | （－） |  | Plus guard No． 2 ＊1 |
|  |  | （6）Folding unit |  |  | $\bullet$ | （－） |  | Plus guard No． 2 ＊1 |
| 4 | Folding unit | （1）Folding roller |  | － |  |  |  |  |
| 5 | Stapler unit | （1）Staple cartridge 12QRK001＊ | 2 |  | $\bullet$ |  | （－） | 5，000 staples／car－ tridge replace as necessary |
| 6 | Exterior | （1）Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner／clean－ ing pad |
| 7 | Final check | （1）Paper through check |  |  | $\bullet$ |  |  | Stapler positioning jig＊2 |

＊1 If abnormal sound is heard due to insufficient oil，lubricate it．
＊2 Check to see that the upper and lower positions are properly set．
5．FNS［FS－111］（Every 250，000 copies）

| NO | Classification | Service item | Number of parts replaced | Implementation classifica－ tion |  |  |  | Materials／tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Clea－ ning | Inspe－ ction | Lubric －ation | Replace －ment |  |
| 1 | Preparation | （1）Paper feeding check |  |  | － |  |  |  |
| 2 | Conveyance section | （1）Conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner／clean－ ing pad |
|  |  | （2）Conveyance cleaning brush 13TR－272＊ | 2 |  |  |  | $\bullet$ |  |
| 3 | Paper exit sec－ tion | （1）Paper exit rollr A（sponge roller） $\begin{array}{r}122 \mathrm{H} 4825^{*}\end{array}$ | 10 |  |  |  | $\bigcirc$ |  |
|  |  | （2）Cleaning of area around paper exit roller A |  | $\bigcirc$ |  |  |  |  |
| 4 | Drive section | （1）Main drive unit |  |  | $\bullet$ | （－） |  | Plus guard No．2＊1 |
|  |  | （2）Tray up／down unit |  |  | $\bigcirc$ | （－） |  | Plus guard No． $\mathbf{2}^{* 1}$ |
|  |  | （3）Shift drive unit |  |  | － | （－） |  | Plus guard No． 2 ＊1 |
|  |  | （4）Paper exit drive unit |  |  | $\bigcirc$ | （－） |  | Plus guard No． 2 ＊1 |
|  |  | （5）Staple unit |  |  | － | （－） |  | Drum cleaner／clean |
| 5 | Final check | （1）Paper through check |  |  | － | （－） |  |  |
|  |  | （2）Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner／clean－ ing pad |

＊1 If abnormal sound is heard due to insufficient oil，lubricate it．

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6. LCT [LT-402/412](Every 250,000 copies)

| NO | Classification | Service item | Num-ber ofpartsreplace$d$ | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{array}{\|l\|} \hline \text { Clea- } \\ \text { ning } \end{array}$ | $\begin{array}{\|c} \hline \begin{array}{l} \text { Inspe- } \\ \text { ction } \end{array} \end{array}$ | $\begin{aligned} & \hline \text { Lubric } \\ & \text {-ation } \end{aligned}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Preparation | (1) Paper through check |  |  | - |  |  |  |
| 2 | Inside of machine | (1) Sensors |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (2) Gears |  |  |  | - |  | Plus guard No. 2 |
|  |  | (3) Conveyance roller/driven roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (4) Feed roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (5) Paper feed conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (6) Double feed prevention roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 3 | Final check | (1) Paper through check |  |  | - |  |  |  |
|  |  | (2) Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |

7. $\mathrm{Pl}-110$ (Every 250,000 copies)

| NO | Classification | Service item | Num- <br> ber of <br> parts <br> replace <br> $d$ | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspe ction | $\begin{gathered} \hline \text { Lubric } \\ \text {-ation } \end{gathered}$ | Replace -ment |  |
| 1 | Conveyance section | (1) Conveyance roller |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 2 | Paper feed section | (1) Feed roller |  | $\bullet$ |  | ( $)^{\text {) }}$ |  | Drum cleaner/cleaning pad *1 |
|  |  | (2) Paper feed conveyance roller |  | $\bullet$ |  | ( $)$ |  | Drum cleaner/cleaning pad *1 |
|  |  | (3) Double feed prevention roller |  | $\bullet$ |  | ( $)$ |  | Drum cleaner/cleaning pad *1 |
| 3 | Final check | (1) Paper through check |  |  | $\bullet$ |  |  |  |
|  |  | (2) Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |

*1 If abnormal sound is heard due to insufficient oil, lubricate it \{Plus guard No.2\}.

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8. PK-110/120 (Every 250,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{array}{\|c} \hline \text { Replace } \\ \text {-ment } \end{array}$ |  |
| 1 | Punch unit main body | (1) Punch die |  | $\bigcirc$ |  |  |  | Blower brush |
| 2 | Punch dust collection section | (1) Punch dust box (for punch dust dump) |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
|  |  | (2) Punch dust detection sensor |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |
| 3 | Final check | (1) Paper through check |  |  | - |  |  |  |
|  |  | (2) Internal cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |

9. PZ-108/109 (Every 250,000 copies)

| NO | Classification | Service item | $\begin{aligned} & \text { Number } \\ & \text { of parts } \\ & \text { replaced }\end{aligned}$ | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{array}{\|c} \hline \text { Clea- } \\ \text { ning } \\ \hline \end{array}$ | $\begin{array}{\|c} \text { Inspe- } \\ \text { ction } \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \text { Lubric } \\ \text {-ation } \\ \hline \end{array}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Punch section | (1) Punch die |  | $\bullet$ |  |  |  | Blower brush |
| 2 | Conveyance section | (1) Entrance guide plate/A |  | $\bullet$ |  |  |  | Cleaning pad |
|  |  | (2) Trailing edge detect section (Entrance guide plate/B) |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (3) Registration roller |  | $\bullet$ |  |  |  | Drum cleaner/clean ing pad Note: Check and clean the remaining punch scraps. |
|  |  | (4) Conveyance roller |  | $\bullet$ |  |  |  |  |
|  |  | (5) Folding roller (1st, 2nd) |  | $\bullet$ |  |  |  |  |
|  |  | (6) Exit conveyance roller |  | $\bullet$ |  |  |  |  |
|  |  | (7) Exit guide plate/A |  | $\bullet$ |  |  |  | Cleaning pad |
| 3 | Finisher side | (1) Conveyance guide plate/B |  | $\bullet$ |  |  |  | Cleaning pad |
| 4 | Punch scraps conveyance section | (1) Punch scraps box |  | $\bullet$ |  |  |  | Throw away punch scraps. |
| 5 | Final check | (1) Paper through check |  |  | - |  |  |  |
|  |  | (2) Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/cleaning pad |

10. SF-101 (Ever 250,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & \text { Clea- } \\ & \text { ning } \end{aligned}$ | Inspection | $\begin{gathered} \text { Lubric } \\ \text {-ation } \end{gathered}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Conveyance section | (1) Driving roller |  | - |  |  |  | Drum cleaner/ Cleaning pad |
|  |  | (2) Driven roller |  | $\bullet$ |  |  |  | Drum cleaner/ Cleaning pad |
|  |  | (3) Neutralization brush |  | $\bullet$ |  |  |  | Blower brush |
|  |  | (4) Sensors |  | $\bullet$ |  |  |  | Blower brush |
| 2 | Final check | (1) Paper feeding check |  |  | - |  |  |  |
|  |  | (2) Exterior cleaning |  | $\bullet$ |  |  |  | Drum cleaner/ Cleaning pad |


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## [3] Main Body Periodic Inspection Items

1. Periodic check (I) (Every 500,000 copies)

2. Periodic check (II) (Every 1,000,000 copies)

|  | NO | Classification | Service item |  | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{array}{\|c} \text { Replace } \\ \text {-ment } \end{array}$ |  |
| 4 | 1 | Paper feed unit | (1) Paper feed roll | rubber A 55FA-411* (7155/7165) |  | 3 |  |  |  | $\bigcirc$ | Actual replacement count: 800 K feeds |
|  | 2 | By-pass feed unit | (1) Paper feed rolle (manual feed) | $\begin{aligned} & \text { ubber } \\ & 55 \text { FA4233* } \end{aligned}$ | 1 |  |  |  | $\bigcirc$ | Actual replacement count: 140 K feeds |
| 4 | 3 | Fixing unit | (1) Fixing lamp/1 | $56 A^{*} 8703^{*}$ $(7155 / 7165)$ $56 A^{*} 8303^{*}$ $(7255 / 7272)$ | 1 |  |  |  | $\bullet$ |  |
|  |  |  | (2) Fixing lamp/2 | 56A*8304* | 1 |  |  |  | $\bigcirc$ |  |
|  |  |  | (3) Fixing lamp/3 | 56A*8305* | 1 |  |  |  | $\bigcirc$ |  |
|  |  |  | (4) Bearing/1 | 07AA7509* | 4 |  |  |  | $\bigcirc$ |  |
|  | 4 | Drive unit | (1) Fixing drive gea | 25BA7726* | 1 |  |  |  | $\bigcirc$ |  |


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3. Periodic check (III) (Every 2,000,000 copies)

|  | NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Cleaning | Inspection | Lubric -ation | Replace -ment |  |
|  | 1 | Drum unit | (1) Drum separation claw solenoid 26NA8251* | 1 |  |  |  | $\bigcirc$ |  |
|  | 2 | Second paper feed unit | (1) 2nd paper feed clutch 56AA8201* | 1 |  |  |  | $\bullet$ |  |
|  | 3 | Transfer/separation corona unit | (1) Transfer/separation corona unit 56AA-260* | 1 |  |  |  | $\bigcirc$ |  |
| 4 | 4 | Fixing unit | (1) Fixing drive gear 56QA7721*(7255/7272) | 1 |  |  |  | $\bullet$ |  |

4. Periodic check (IV) (Every 2,500,000 copies)

|  | NO | Classification | Service item |  | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
|  | 1 | Drum unit | (1) Toner control board unit 56AA-910* |  |  | 1 |  |  |  | $\bullet$ |  |
| 4 | 2 | Charging corona unit | (1) Charging corona unit (includin PCL) | 56AA-250* <br> $(7155 / 7165)$ <br> $56 Q A-250^{*}$ <br> $(7255 / 7272)$ | 1 |  |  |  | - |  |
| 4 | 3 | 2nd paper feed unit | (1) TSL | $\begin{array}{r} \text { 56AA8307* } \\ (7155 / 7165) \end{array}$ | 1 |  |  |  | $\bullet$ |  |
|  |  |  | (2) Paper feed slide | shaft holder 26NA4082* | 2 |  |  |  | $\bullet$ |  |
|  |  |  | (3) Registration roller (U) | 56AA4603* <br> (7155/7165) <br> 56QA4603* <br> (7255/7272) | 1 |  |  |  | - |  |
| 4 | 4 | Developing unit | (1) Developing unit | 56AA-300* <br> $(7155 / 7165)$ <br> $56 \mathrm{QA}-300^{*}$ <br> $(7255 / 7272)$ | 1 |  |  |  | - |  |
|  | 5 | Fixing unit | (1) Upper roller erro sensor | detection 56AA8804* | 1 |  |  |  | $\bigcirc$ |  |
|  | 6 | ADU | (1) Registration sh | $\begin{aligned} & \text { (L) } \\ & \text { 55GA7551* } \end{aligned}$ | 2 |  |  |  | $\bigcirc$ |  |
|  |  |  | (2) Registration sha | $\begin{aligned} & \text { (U) } \\ & 55 \text { GA7552* } \end{aligned}$ | 2 |  |  |  | $\bigcirc$ |  |
|  |  |  | (3) ADU registration | roller (U) 56AA5111* | 1 |  |  |  | $\bigcirc$ |  |
| 4 |  |  | (4) ADU registra tion roller (L) | 56AA5112* <br> $(7155 / 7165)$ <br> 56QA5112* <br> $(7255 / 7272)$ | 1 |  |  |  | - |  |
|  | 7 | Conveyance unit | (1) TSL cover assembly$56 A A-387^{*}$ |  | 1 |  |  |  | $\bigcirc$ |  |
| 4 | 8 | Paper feed unit | $\begin{array}{\|l\|} \hline \text { (1) Paper feed roller rubber } \\ 56 A A-458^{*}(7255 / 7272) \end{array}$ |  | 1 |  |  |  | - | Periodical replacement count: 0.83 million feed |


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## 4. [4] RADF [DF-316/DF-322]

1. Periodic check (I) (Every 500,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{array}{\|l} \hline \text { Clea- } \\ \text { ning } \\ \hline \end{array}$ | $\begin{array}{\|c} \text { Inspe } \\ \text { ction } \end{array}$ | $\begin{aligned} & \text { Lubric } \\ & \text {-ation } \end{aligned}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Paper feed section | (1) Feed roller rubber ${ }_{13 \mathrm{QA4127}}{ }^{*}$ | 1 |  |  |  | $\bullet$ | Actual replacement count: 200 K feeds |
|  |  | (2) Paper feed roller rubber $\begin{gathered}\text { 13QA4104* } \\ \text { * }\end{gathered}$ | 1 |  |  |  | $\bullet$ |  |
|  |  | (3) Double feed prevention roller rubber 13QA4045* | 1 |  |  |  | $\bullet$ |  |

2. Periodic check (II) (Every 1,500,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | $\begin{array}{\|c} \hline \begin{array}{l} \text { Inspe- } \\ \text { ction } \end{array} \\ \hline \end{array}$ | Lubric -ation | $\begin{array}{\|c\|c\|} \hline \text { Replace } \\ \text {-ment } \\ \hline \end{array}$ |  |
| 1 | Paper feed section | (1) Double feed prevention roller 13QA4001* | 1 |  |  |  | $\bullet$ | Actual replacement count: 600 K feeds |

## [5] FNS [FS-110] (Old type only)/ [FS-210] (Old type only)

1. Periodic check (II) (Every 2,500,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | $\begin{gathered} \text { Lubric } \\ \text {-ation } \end{gathered}$ | Replace |  |
| 1 | Drive unit | (1) FNS up/down motor ${ }_{13 Q E-115^{*}}$ | 1 |  |  |  | - | Actual replacement count: 2.5 million feeds |


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## [6] FNS [FS-111]

1. Periodic check (Every $2,500,000$ copies))

| NO | Classification | Service item |  | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & \hline \text { Clea- } \\ & \text { ning } \\ & \hline \end{aligned}$ | $\begin{array}{\|c} \text { Inspe- } \\ \text { ction } \end{array}$ | Lubric -ation | Replace -ment |  |
| 1 | Drive unit | (1) FNS motor | 129U-108* |  | 2 |  |  |  | $\bullet$ |  |

## [7] LCT [LT-402/412]

1. Periodic check (I) (Every $1,000,000$ copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | Lubric -ation | Replace -ment |  |
| 1 | Inside of machine | (1) Feed roller 55VA-484* | 1 |  |  |  | - | Actual replacement count: 500 K feeds each |
|  |  | (2) Paper feed conveyance roller 55VA-483* | 1 |  |  |  | $\bullet$ |  |
|  |  | (3) Double feed prevention roller 55VA-483* | 1 |  |  |  | $\bigcirc$ |  |

2. Periodic check (II) (Every 4,000,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{array}{\|l} \hline \begin{array}{l} \text { Clea- } \\ \text { ning } \end{array} \\ \hline \end{array}$ | $\begin{aligned} & \text { Inspe- } \\ & \text { ction } \end{aligned}$ | Lubric -ation | Replace -ment |  |
| 1 | Inside of machine | (1) Feedclutch 56AA8201* | 1 |  |  |  | $\bullet$ | Actual replacement count: 2 million feeds |
|  |  | (2) Conveyance clutch 56AA8201* | 1 |  |  |  | $\bullet$ |  |


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## [8] $\mathrm{PI}[\mathrm{Pl}-110]$

1. Periodic check (I) (Every 500,000 copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classifica-tion |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | $\begin{array}{\|c} \text { Inspe- } \\ \text { ction } \end{array}$ | $\begin{gathered} \text { Lubric } \\ \text {-ation } \end{gathered}$ | $\begin{array}{\|c\|c\|} \hline \text { Replace } \\ \text {-ment } \\ \hline \end{array}$ |  |
| 1 | Paper feed section | (1) Feed roller assembly/B 50BA-575* | 2 |  |  |  | $\bullet$ | Actual replacement count: 100 K feeds |
|  |  |  | 2 |  |  |  | $\bullet$ |  |

2. Periodic check (II) (Every 1,000,000 copies)

| NO | Classification | Service item | Number <br> of parts <br> replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | $\begin{array}{\|c} \text { Inspe- } \\ \text { ction } \end{array}$ | $\begin{aligned} & \text { Lubric } \\ & \text {-ation } \end{aligned}$ | $\begin{gathered} \text { Replace } \\ \text {-ment } \\ \hline \end{gathered}$ |  |
| 1 | Paper feed section | (1) Feed roller assembly/A 50BA-574* | 2 |  |  |  | - | Actual replacement count: 200 K feeds each |

3. Periodic check (III) (Every 3,000,000 copies)

| NO | Classification | Service item |  | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | $\begin{array}{\|c\|} \hline \begin{array}{c} \text { Inspe- } \\ \text { ction } \end{array} \\ \hline \end{array}$ | $\begin{aligned} & \text { Lubric } \\ & \text {-ation } \\ & \hline \end{aligned}$ | Replace -ment |  |
| 1 | Paper feed section | (1) Torque limite | 13QN4073* |  | 2 |  |  |  | $\bullet$ | Actual replacement count: 600 K feeds |

## [9] PZ [PZ-108/109]

1. Periodic check (I) (Every $3,000,000$ copies)

| NO | Classification | Service item | Number of parts replaced | Implementation classification |  |  |  | Materials/tools used |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Cleaning | Inspection | Lubric -ation | $\begin{gathered} \text { Replace } \\ \text {-ment } \end{gathered}$ |  |
| 1 | Punch section | (1) Punch clutch 13NKK001* | 1 |  |  |  | $\bigcirc$ | Actual replacement count: 1,000K times |
| 2 | Punch scraps conveyance section | (2) Punch scraps conveyance motor $12 \mathrm{GQ}-417^{*}$ | 1 |  |  |  | - | Actual replacement count: 1,000K times |


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## [10] Periodic replacement parts list

1. Main body


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|  | No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | 3 | Periodic check (II) (Every 1,000,000 copies) | Paper feed roller rubber/A (Tray 1 to 3) (7155/7165) | 55FA-411* | 3 |  | 800,000 | 29,34,39 |
|  |  |  | Paper feed rubber (by-pass feed) | 55FA4233* | 1 |  | 140,000 | 49 |
|  |  |  | Fixing lamp/1 (7155/7165) | 56A*8703* | 1 | 1,000,000 |  |  |
|  |  |  | Fixing lamp/1 (7255/7272) | 56A*8303* | 1 | 1,000,000 |  |  |
|  |  |  | Fixing lamp/2 | 56A*8704* | 1 | 1,000,000 |  |  |
|  |  |  | Fixing lamp/3 | 56A*8705* | 1 | 1,000,000 |  |  |
|  |  |  | Bearing/1 | 07AA7509* | 4 | 1,000,000 |  |  |
|  |  |  | Fixing drive gear | 25BA7726* | 1 | 1,000,000 |  |  |
| 4 | 4 | Periodic check (III) (Every 2,000,000 copies) | Drum separation claw solenoid | 26NA8251* | 1 | 2,000,000 |  | 103 |
|  |  |  | 2nd paper feed clutch | 56AA8201* | 1 | 2,000,000 |  | 64 |
|  |  |  | Transfer/separation corona unit | 56AA-260* | 1 | 2,000,000 |  | 20 |
|  |  | 4 | Developing suction filter (7255/7272) | 56QA7721* | 1 | 2,000,000 |  | 1 |
|  | 5 | Periodic check (IV) (Every 2,500,000 copies) | Toner control board unit | 56AA-910* | 1 | 2,500,000 |  | 19 |
|  |  |  | Charging unit (including PCL) (7155/7165) | 56AA-250* | 1 | 2,500,000 |  | 25 |
|  |  |  | $\begin{aligned} & \text { Charging unit (including PCL) } \\ & \text { (7255/7272) } \end{aligned}$ | 56QA-250* | 1 | 2,500,000 |  |  |
|  |  |  | TSL | 56AA8703* | 1 | 2,500,000 |  |  |
|  |  |  | Paper feed slide shaft holder | 26NA4082* | 2 | 2,500,000 |  |  |
|  |  |  | Registration roller /U (7155/7165) | 56AA4603* | 1 | 2,500,000 |  |  |
|  |  |  | Registration roller /U (7255/7272) | 56QA4603* | 1 | 2,500,000 |  |  |
|  |  |  | Developing unit (7155/7165) | 56AA-300* | 1 | 2,500,000 |  | 27 |
|  |  |  | Developing unit (7255/7272) | 56QA-300* | 1 | 2,500,000 |  |  |
|  |  |  | Upper roller error detection sensor | 56AA8804* | 1 | 2,500,000 |  | 23 |
|  |  |  | Registration bearing /L | 55GA7551* | 2 | 2,500,000 |  |  |
|  |  |  | Registration bearing / U | 55GA7552* | 2 | 2,500,000 |  |  |
|  |  |  | ADU registration roller /U | 56AA5111* | 1 | 2,500,000 |  |  |
|  |  |  | ADU registration roller/L (7155/7165) | 56AA5112* | 1 | 2,500,000 |  |  |
|  |  |  | ADU registration roller/L (7255/7272) | 56QA5112* | 1 | 2,500,000 |  |  |
|  |  |  | TSL cover assembly | 56AA-387* | 1 | 2,500,000 |  | 28 |
|  |  |  | $\begin{aligned} & \text { Paper feed roller rubber/A (Tray } 1 \text { to 3) } \\ & \text { (7255/7272) } \end{aligned}$ | 56AA-458* | 1 |  |  |  |

## (4) 2. DF-316/DF-322

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Periodic replacement (I) (Every 500,000 copies) | Feed roller rubber | 13QA4127* | 1 |  | 200,000 | 92 |
|  |  | Paper feed roller | 13QA4104* | 1 |  | 200,000 | 93 |
|  |  | Double feed prevention roller rubber | 13QA4045* | 1 |  | 200,000 | 94 |
| 2 | Periodic replacement <br> (II) <br> (Every 1,500,000 copies) | Double feed prevention roller | 13QA4001* | 1 |  | 600,000 | 95 |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $4-17$ | REPLACEMENT |

3. FS-110/210

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Maintenance <br> (Every 250,000 copies) | Paper exit roller/A (sponge roller) | 122H4825* | 10 | 250,000 |  |  |
|  |  | Conveyance roller/4 (sponge roller) | 13QE4531* | 4 | 250,000 |  |  |
|  |  | Staple cartridge | 12QRK001* | 2 |  | 5,000/each |  |
| 2 | Periodic check (II) (Every 2,500,000 copies) | FNS up/down motor (Old type only) | 13QE-115* | 1 |  | 2,500,000 | 69 |

4. $\mathrm{FS}-111$

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Maintenance <br> Every 250,000 copies | Paper exit roller /A (sponge roller) | $12 H 4825^{*}$ | 10 | 250,000 |  | 52 |  |
|  | Conveyance cleaning brush | 13 TR-272* | 2 | 250,000 |  | 53 |  |
|  | Staple needle | 13 TQK101* | 2 |  | $5,000 /$ each | 53 |  |
| 2 | Periodic check (I) <br> (Every 2,500,000 cop- <br> ies) | FNS motor | $129 U-108^{*}$ | 2 | $2,500,000$ |  | 54 |

## 5. LT-402/412

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Periodic check (I) (Every 1,000,000 copies) | Feed roller | 55VA-484* | 1 |  | 500,000 | 52 |
|  |  | Paper feed conveyance roller | 55VA-483* | 1 |  | 500,000 | 53 |
|  |  | Double feed prevention roller | 55VA-483* | 1 |  | 500,000 | 53 |
| 2 | Periodic check (II) (Every 4,000,000 copies) | Paper feed clutch | 56AA8201* | 1 |  | 2,000,000 | 54 |
|  |  | Conveyance clutch | 56AA8201* | 1 |  | 2,000,000 | 55 |

6. PI-110

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| 1 | Periodic check (I) <br> (Every 500,000 copies) | Feed roller assembly/B <br> Double feed prevention roller assem- <br> bly | $50 \mathrm{BA}-575^{\star}$ | 2 |  | 100,000 | 79 |
| 2 | Periodic check (II) <br> (Every $1,000,000$ cop- <br> ies) | Feed roller assembly/A | 2 |  | 100,000 | 80 |  |
| 3 | Periodic check (II) <br> (Every 3,000,000 cop- <br> ies) | Torque limiter (U and L) | $50 \mathrm{BA}-574^{\star}$ | 2 |  | 200,000 | 78 |

7. PZ-108/109

| No | Classification | Parts name | Parts No. | Qty | Total count | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Periodic check (I) (Every 3,000,000 copies) | Punch clutch | 13NKK001* | 1 |  | 1,000,000 | 88,89,90 |
| 2 |  | Punch scraps conveyance motor | 12GQ-417* | 1 |  | 1,000,000 | 88,89,90 |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $4-18$ | REPLACEMENT |

## [11] Optional replacement parts list

The parts described below are not for periodical replacement, but should be replaced when reaching the actual count value.

1. Main body

| No | Parts name | Parts No. | Qty | Actual count | Parts count No. |
| :---: | :--- | :---: | :---: | :---: | :---: |
| 1 | Vertical conveyance clutch/ 1, 2 | 56AA8201* | 2 | $2,000,000$ | 61,62 |
| 2 | Paper feed clutch (Tray 1 to 4) | 56AA8201* | 4 | $2,000,000$ | $31,36,41,46$ |
| 3 | Conveyance clutch (Tray 1 to 4) | 56AA8201* | 4 | $2,000,000$ | $32,37,42,47$ |
| 4 | Horizontal conveyance clutch/ L, R (7255/ <br>  <br> $7272)$ | 56AA8201* | 2 | $2,000,000$ | 111,112 |
| 5 | Web solenoid | 56QA8251* | 1 | $2,000,000$ | 63 |
| 6 | ADU deceleration clutch (7255/7272) | 56AA8201* | 1 | $2,000,000$ | 65 |
| 7 | ADU conveyance clutch (7255/7272) | 56AA8201* | 1 | $2,000,000$ | 65 |

2. FS-110/210

| No | Parts name | Parts No. | Qty | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | ---: | :---: |
| 1 | Stapler unit/F | 13QE4241* | 1 | $2,000,000$ | 70 |
| 2 | Stapler unit/R | 13QE4241* | 1 | $2,000,000$ | 71 |

## 3. FS-111

| No | Parts name | Parts No. | Qty | Actual count | Parts count No. |
| :---: | :---: | :---: | :---: | ---: | :---: |
| 1 | Stapler unit/F | 13 TQ4250* | 1 | $2,000,000$ | 70 |
| 2 | Stapler unit/R | 13 TQ4250* | 1 | $2,000,000$ | 71 |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $4-19$ | REPLACEMENT |

## [12] Important maintenance parts

- The important parts specified by Konica in order to maintain safety of the products are referred to as "important maintenance parts". The important maintenance parts for this machine are as described below:

| No | Unit <br> classification | Parts name | Parts No | Qty |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Fixing unit | Thermostat/U | SP00-0020 | 1 |
|  |  | Thermostat/L | SP00-0010 | 1 |

- "SP" is indicated in front of the parts number of the important maintenance parts. Exercise care when installing the parts according to " 3 . Directions for disassembly and assembly" in this manual.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $4-20$ | REPLACEMENT |

## COPY MATERIALS

## [1] Single unit supply

| Name | Durability/copies |
| :---: | :---: |
| Toner cartridge | 43,000 |
| Developer | 250,000 |
| Drum | 500,000 |

## [2] Maintenance kit

1. 250,000 copies/kit

| Name | Parts No. | Qty |
| :---: | :---: | :---: |
| Charging control plate | 56AA2503* | 1 |
| Charging wire | 56AA2509* | 1 |
| Charging cleaning base | 56AA2540* | 1 |
| Charging slide block | 56AA2538* | 1 |
| Charging wire cleaning block/U | 56AA-253* | 1 |
| Resin ring ( $\phi 2$ ) (charging corona. transfer/separation corona) | 45AA2040* | 3 |
| Charging wire cleaning block (L) | 56AA-254* | 1 |
| Toner guide roller | 56AA-213* ${ }^{\text {(7155/7165) }}$ | 1 |
|  | 56QA-213* ${ }^{\text {(7255/7272) }}$ |  |
| Cleaning blade | 56AA2010* | 1 |
| Discharging wire | 56AA2609* | 3 |
| Transfer cleaning assembly | 56AA-264* | 1 |
| Separation cleaning assembly | 56AA-267* | 1 |
| Transfer/Separation vibration proot rubber | 55VA2615*(7155/7165) | 3 |
|  | 56AA1783* $7255 / 7272$ ) |  |
| Ozone filter K | 55FA7301*(7155/7165) | 1 |
| Ozone filter M | 56QA1059*(7255/7272) |  |
| Ozone filter S | 56QA1057* $7255 / 7272$ ) |  |
| Developing suction filter | 56AA-735*(7155/7165) | 1 |
|  | 56QA7320*(7255/7272) |  |
| Fixing web unit | 56AA-543* | 1 |
| Fixing claw /U | 56AA5427* | 6 |
| Cleaning pad (10 pcs) | - | 5 |
| Polyethylene gloves | - | 1 |
| Dust bag (rubber band) | - | 1 |
| Developer collection sheet (rubber band) | - | 1 |
| Hand case for collection | - | 1 |
| Cotton swabs (4 pcs) | - | 2 |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\boxed{4}$ | Dec. 2003 | $4-21$ | REPLACEMENT |

## SERVICE MATERIAL LIST

| Material No. | Material Name | Appearance | Remarks |
| :---: | :---: | :---: | :---: |
| 000V-16-0 | Drum cleaner | 200 ml |  |
| 000V-17-0 | Roller cleaner | 200 ml |  |
| 00GR00020 | Plas guard No. 2 | 25 g |  |
| 00GR00150 | Molytherm grease | 25 g |  |
| 00GR00200 | Electricity lubricant | 25 g | For toner guide roller |
| 000V-19-0 | Setting powder |  <br> 25 g |  |
| 000V-18-0 | Cleaning pad |  |  |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica 7155/7165 | SERVICE HANDBOOK | $\uparrow$ | Nov. 2001 | $4-22$ | REPLACEMENT |

## CE TOOL LIST

| Tool No. | Tool Name | Ruantity | Remarks |  |
| :---: | :---: | :---: | :---: | :---: |
| 00M8-1-00 | Thermostat PS jig(for upper <br> roller) | Thermostat PS jig(for lower <br> roller) |  |  |
| 56AEJG011 | Temp. detection jig |  | 1 | 1 |


|  | Tool No. | Tool Name | Appearance | Quantity | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 00VC-2-00 | Drum cover | $\langle>$ | 1 |  |
|  | O0VD-1000 | Blower brush |  | 1 |  |
|  | O0VE-1003 | Tester |  | 1 |  |
|  | 120A1052* | PS shaft |  | 2pc/set | For DF-316 positioning |
|  | 120A9711* | ADJ chart |  | 1 | For DF-316 adjustment |
|  | 120A9712* | White chart |  | 1 | For DF-316 adjustment |
|  | 129XJG011 | Stapler PS jig |  | 1 | For FS-110/ FS-210 adjustment |

## 5 <br> ELECTRIC PARTS LIST

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## PARTS LAYOUT DRAWING

## 4. [1] 7155/7165/7255/7272 Parts Layout Drawing

1. Read Section
Scanner HP PS
2. Operation Section
SW2
Sub power switch
CAKB
Cotal counter
Panel key board
WM5
Cleaner cooling fan

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-1$ | REPLACEMENT |

## 3. Charging Corona Section


4. Drum Stand Section

5. Tray $1,2,3(7155 / 7165)$

6. Tray 1,2 (7255/7272)


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-3$ | REPLACEMENT |

7. Tray 3, 4 (7255/7272)


4
8. Horizontal Conveyance Section/Main body right side (7255/7272)


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-3-1$ | ADDITION |

## 4. 9. Vertical Conveyance Section

MC11
Vertical conveyance $\mathrm{MC} / 1$
MC12
Vertical conveyance MC/2

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-3-2$ | ADDITION |

10. By-pass Feed Section

11. Second Paper Feed Section


## 4 <br> 12. ADU Stand Section


*1: Installed only in old model.

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-5$ | REPLACEMENT |

13. Fixing Section

14. Toner Supply Section

15. Write Section

16. Left Side of the Main Body


## 17. Rear Side of the Main Body In the case of the 7155/7165



## In the case of the 7255/7272



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-8-1$ | ADDITION |

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## [2] DF-316/DF-322 Parts Layout Drawing



## [3] LT-402/LT-412 Parts Layout Drawing



## [4] FS-110/FS-210 Parts Layout Drawing



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica 7155/7165 | SERVICE HANDBOOK | 亿 | May 2002 | $5-11$ | REPLACEMENT |





| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-13$ | REPLACEMENT |

## [5] Pl-110 Parts Layout Drawing

M202

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica 7155/7165 | SERVICE HANDBOOK | 亿 | May 2002 | $5-14$ | REPLACEMENT |

## [6] PK-110/PK-120 Parts Layout Drawing



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Konica 7155/7165 | SERVICE HANDBOOK | 亿 | May 2002 | $5-15$ | REPLACEMENT |

## 4 [7] PZ-108/PZ-109 Parts Layout Drawing



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-15-1$ | ADDITION |

## ［8］FS－111 Parts Layout Drawing




| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec．2003 | $5-15-2$ | ADDITION |



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-15-3$ | ADDITION |

## [9] SF-101 Parts Layout Drawing



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-15-4$ | ADDITION |

## CONNECTOR LAYOUT DRAWING

## 4 [1] 7155/7165/7255/7272 Connector Layout Drawing

1. Printer control board

In the case of the 7155/7165


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-16$ | REPLACEMENT |

In the case of the 7255/7272


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-16-1$ | ADDITION |

2. Image control board In the case of the 7155/7165


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-16-2$ | ADDITION |

In the case of the 7255/7272


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-16-3$ | ADDITION |

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3. ADU drive board

In the case of the 7155/7165


In the case of the 7255/7272

4. DC power supply unit


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-17$ | REPLACEMENT |

5. Scanner drive board

6. High voltage unit

7. L 1 inverter

8. Toner control sensor board


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-18$ | REPLACEMENT |

9. Operation board/1

10. OB inverter

11. Index sensor board

12. A/D converter board

13. Laser driver board

14. Polygon drive board

15. Memory board

16. AC drive board


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-19$ | REPLACEMENT |

## [2] LT-402/LT-412 Connector Layout Drawing

1. LT drive board


## [3] FS-110/FS-210 Connector Layout Drawing

1. FNS control board

2. Relay board


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-20$ | REPLACEMENT |

## [4] Pl-110 Connector Layout Drawing

1. PI drive board

2. Pl operation board


## [5] PK-110/PK-120 Connector Layout Drawing

1. Punch drive board (PK-110)


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Konica 7155/7165 | SERVICE HANDBOOK | 亿 | May 2002 | $5-21$ | REPLACEMENT |

2. Punch drive board (PK-120)

3. Paper edge sensor

[6] PZ-108/PZ-109 Connector Layout Drawing
4. PZ control board


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-21-1$ | ADDITION |

## 44 [7] FS-111 Connector Layout Drawing

1. FNS control board

2. Relay board


## [8] SF-101 Connector Layout Drawing

1. PI drive board


| DIP SW | Function |
| :---: | :--- |
| 1 | No setting |
| 2 | Setting of test action |
| 3 |  |
| 4 | Starting up the test action |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-21-2$ | ADDITION |

JAM CODE LIST


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-22$ | REPLACEMENT |



| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-23$ | REPLACEMENT |



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| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-24$ | REPLACEMENT |


|  |  | Classification | Jam <br> Code |  | Cause | Machine response | Countermeasure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 |  | Paper <br> conveyance <br> $(7155 / 7165:$ <br> tray $2 / 3)$ <br> $(7255 / 7272:$ <br> tray $3 / 4)$ | J17-3 |  | PS36 (loop) does not turn ON within the predefined time after PS26 (vertical conveyance /2) has turned ON . | The machine stops immediately after paper ejection has completed when jamming occurs while ajob is being processed. | Open the vertical conveyance door on the main body and remove the jammed paper. |
| 4 |  | Paper conveyance (tray 2) | J17-4 |  | PS26 (vertical conveyance /2) does not turn ON within the predefined time after PS7 (paper feed /2) has turned ON.(7155/7165) PS36 (loop) does not turn ON within the predefined time after MC6 (pre-registration MC/2) has turned ON. (7255/7272) |  |  |
| 4 |  | Paper conveyance (tray 3) | J17-5 |  | PS26 (vertical conveyance /2) does not turn ON within the predefined time after MC8 (pre-registration $\mathrm{MC} / 3$ ) has turned ON . PS27 (vertical conveyance /3) does not turn ON within the predefined time after MC8 (pre-registration $\mathrm{MC} / 3$ ) has turned ON . (7255/7272) |  |  |
| 4 |  | Paper conveyance (tray 4) (7255/7272) | J17-6 J17-7 |  | PS27 (vertical conveyance /3) does not turn ON within the predefined time after MC10 (pre-registration $\mathrm{MC} / 4$ ) has turned ON . PS28 (vertical conveyance /4) does not turn ON within the predefined time after MC10 (pre-registration $\mathrm{MC} / 4$ ) has turned ON . |  |  |
|  | ַ- | LCT | J17-8 |  | PS36 (loop) does not turn ON within the predefined time after PS106 (LT paper feed) has turned ON. |  | OpentheLTjamdoor and remove the jammed paper. |
|  |  | Paper feed/ conveyance | $\begin{array}{\|l\|} \hline \mathrm{J} 17-9 \\ \hline \mathrm{~J} 17-10 \\ \hline \mathrm{~J} 17-12 \end{array}$ | $\begin{aligned} & \frac{7}{\overline{0}} \\ & \frac{0}{0} \\ & \frac{0}{\pi} \\ & -\frac{\pi}{0} \end{aligned}$ | PS43 (leading edge) is turned ON while in the idling status. PS44 (registration) is turned ON while in the idling status. PS36 (loop) is turned ON while in the idling status. | - | Open the vertical conveyance door and/or the front door on the main body and remove the jammed paper. |


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|  | Classification | $\begin{aligned} & \text { Jam } \\ & \text { Code } \end{aligned}$ |  | Cause | Machine response | Countermeasure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Fixing/paper exit | J32-9 | 宕 | PS30 (fixing exit) is turned ON while in the idling status. PS46 (reversal/exit) is turned ON while in the idling status. | - | Open the front door and pull out the ADU stand and remove the jammed paper. |
|  | Front door | J51-1 |  | Front door on the right or on the left is opened while a job is being processed. | The machine stops immediately. |  |
| $\mid \stackrel{\rightharpoonup}{\stackrel{\rightharpoonup}{㐅}}$ | DF-316/322 | J61-1 |  | Open/close cover was opened while RADF is in motion. | RADF stops immediately. The machine stops after paper ejection if copying/copied paper is present. | Open the open/close cover and the paper feed unit to remove the jammed paper. |
|  |  | J61-2 |  | RADF was opened while RADF is in motion. |  |  |
|  |  | J62-1 |  | PS304 (original registration /1) does not turn OFF within the predefined time after feeding of the single-side original has started. |  |  |
|  |  | J62-2 |  | PS304 (original registration /1) does not turn OFF within the predefined time after feeding of the double-side original has started. |  |  |
|  |  | J62-3 | O | PS305 (original registration /2) does not turn ON within the predefined time after feeding of the single-side original has started. |  |  |
|  |  | J62-4 | - | PS305 (original registration /2) does not turn ON within the predefined time since reverse paper feed of the back side of the doubleside copy has started. |  |  |
|  |  | J62-5 |  | PS305 (original registration /2) does not turn ON within the predefined time since reverse paper feed of the front side of the doubleside copy has started. |  |  |
|  |  | J62-6 |  | PS305 (original registration /2) does not turn OFF within the predefined time since it has turned ON when feeding the paper for the sin-gle-side copy. |  |  |
|  |  | J62-7 |  | PS305 (original registration /2) does not turn OFF within the predefined time since it has turned ON when processing the reverse paper feed for copying the back side of the double-side original. |  |  |


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4 \begin{tabular}{|l|l|r|c|}

\hline \& Classification \& | Jam |
| :---: |
| Code | \& Cause <br>


\hline \& FS-110/210 \& J72-20 \& | PS706 (main tray paper exit) does |
| :--- |
| not turn ON within the predefined | <br>

sto
\end{tabular}

| Machine response | Countermeasure |
| :---: | :---: |
| FNS/SF/main body <br> stops immediately. | Remove the jammed <br> paper from the FNS, <br> SF, or the main body. |

turned ON within the specific time after PS4(FIN entrance passage) is turned ON (in subtray paper exit).
PS701 (sub-tray paper exit) does not turn OFF within the predefined time since it has turned ON. (Subtray paper exit mode)
PS1(subtray paper exit) is not turned OFF within the specific time after it turns ON (in subtray paper exit).
PS726 (folding passage) does not turn ON within the predefined time since stapling has completed.
PS725 (folding exit) does not turn ON within the predefined time since M719 (folding knife) has turned ON.
PS725 (folding exit) does not turn OFF within the predefined time since it has turned ON.
PS720 (stacker no paper) is turned OFF when stapling starts. (Old type only)

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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-34$ | REPLACEMENT |


|  | Classification | Jam Code |  | Cause | Machine response | Countermeasure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\left.\right\|_{i} ^{\infty}$ | PZ-108/109 | J73-15 | Any of the following sensors is ON during idlling. <br> - Leading/trailing PS on paper edge PS <br> - PS1 (passage) <br> - PS8 (exit) <br> PS201 (Pl passage /U) is turned ON while in the idling status. |  |  | Remove the jammed paper from the FNS or the main body. |
|  | Pl-110 | J73-17 |  |  |  |  |
|  | ADU | J92-1 |  | PS46 (reverse/exit) does not turn ON within the predefined time after PS42 (paper reverse) has turned ON. <br> PS45 does not turn OFF within the predefined time after PS45 (ADU reverse) has turned ON. (7255/ 7272) | The machine stops immediately after paper ejection has completed when jamming occurs while ajob is being processed | Open the front door and pull out the ADU unit and remove the jammed paper. |
|  |  | J92-2 |  |  |  |  |
|  |  | J92-3 | 2 | PS45 (ADU paper reverse) is turned ON while in the idling status. | - |  |
|  |  | J93-1 | O2 | PS48 (ADU conveyance /2) does not turn ON within the predefined time after PS46 (reverse /exit) has turned OFF. | The machine stops immediately after paper ejection has completed when jamming occurs while ajob is being processed |  |
|  |  | J93-2 <br>  <br> J93-3 | 就 | PS48 (ADU conveyance /2) is turned ON while in the idling status. <br> PS50 (ADU pre-registration) is turned ON while in the idling status. | - |  |
|  |  | J94-1 | - ${ }_{\text {O }}^{\text {C }}$ | PS49 (ADU deceleration) does not turn ON within the predefined time after PS48 (ADU conveyance /2) has turned ON. | The machine stops immediately after paper ejection has completed when jam- |  |
|  |  | J94-2 | Ò | PS50 (ADU pre-registration) does not turn ON within the predefined time after PS49 (ADU deceleration) has turned ON again. | ming occurs while ajob is being processed |  |
|  |  | J94-3 | (2000 | PS49 (ADU deceleration) is turned ON while in the idling status. | - |  |


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## ERROR CODE LIST

Note: As for the error codes, "Please call service" will be displayed for the F code, and "Please switch OFF/ON" on E code. On the actual LCD screen, everything is displayed with SC codes.


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | LCT | F18-50 | Error detection signal for M100 (LT up/ down) is detected continuously for one second while M100 is turned ON. | The machine stops immediately and turns OFF RL1 (Main). | ```M100 (LT up/down) LTDB (LT drive board) PS101 (LT lower limit detec- tion) PS109 (LT upper limit detection)``` |
| O |  | F18-51 | PS109 (LT upper limit detection) or PS101 (LT lower limit detection) does not turn ON within 35 seconds since the lifting or descent motion triggered by activating M100 (LT up/down) has started while PS109 or PS101 is turned OFF. | Error code is not displayed on the operation panel. It is displayed only in data collection, list output, and KRDS. |  |
|  | By-pass feed | F18-60 | PS34 (tray upper limit/BP) or PS35 (tray lower limit/BP) does not turn ON within 10 seconds since the upward or downward motion triggered by activating M20 (up/down/BP) has started while PS34 or PS35 is turned OFF. | On the operation panel, jam code J10-1 is displayed but no error code is displayed. For the data collection, list output, and KRDS, the error and jam codes are displayed. | M20 (up/down/BP) PRCB (printer control board) PS34 (tray upper limit/BP) PS35 (tray lower limitBP) |
|  | Wirecleaning abnormality | F21-01 | The lock signal for M14 (charger cleaning) is not detected when more than 25 seconds have passed since the return motion (back to front) of M14 has started. | The machine stops immediately and turns OFF RL1 (main). | M14 (charger cleaning) PRCB (printer control board) |
|  |  | F21-02 | The lock signal for M14 (charger cleaning) is detected within 2 seconds since the return motion (back to front) of M14 has started. |  | M14 (charger cleaning) PRCB (printer control board) |
|  |  | F21-03 | The lock signal for M14 (charger cleaning) is not detected when more than 25 seconds have passed since the return motion (back to front) of M14 has started while re-try process is in motion after lock detection. |  |  |
|  |  | F21-05 | The lock signal for M10(transfer/separation cleaning) is not detected when more than 25 seconds have passed since the return motion (back to front) of M10 has started. |  | M10 (transfer/separation cleaning) ADUDB (ADU drive board) PRCB (printer control board) |
|  |  | F21-06 | The lock signal for M10 (transfer/separation cleaning) is detected within 2 seconds since the return motion (back to front) of M10 has started. |  |  |


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | High-voltage power error | F28-01 | 5 consecutive charging ON/OFF operations have been executed since the charging error detection signal has been detected while charging is turned ON . | The machine stops immediately and turns OFF RL1 (main). | HV (high-voltage unit) |
|  |  | F28-02 | 5 consecutive transfer ON/OFF operations have been executed since the transfer error detection signal has been detected while transfer is turned ON. |  |  |
|  |  | F28-03 | 5 consecutive separation ON/OFF operations have been executed since the separation error detection signal has been detected while separation is turned ON. |  |  |
|  | Process abnormality | F29-01 | Dirt correction failure of the Dmax sensor during maximum density adjustment. If this error is detected 10 successive times, the error code is displayed. |  | TSCB (toner control sensor board) PRCB (printer control board) |
|  |  | F29-03 | Control patches are not output while Dmax correction is in process. (No output from the Dmax sensor.) |  | TSCB (toner control sensor board) PRCB (printer control board) |
|  |  | F29-04 | Dirt correction failure of the $\gamma$ sensor during $\gamma$ adjustment. If this error is detected 10 successive times, the error code is displayed. |  |  |
|  |  | F29-05 | Control patches are not output while $\gamma$ correction is in process. <br> (No output from the $\gamma$ sensor.) | No error code is displayed on the operation panel. The code is reg- |  |
|  |  | F29-06 | A recurrence error occurred when carry out $\gamma$ curve for $\gamma$ correction. | istered in data collection, list output and KRDS. Main body control is performed using previous data. |  |
|  |  | F29-07 | Dirt correction failure of the $\gamma$ sensor during dot diameter adjustment. If this error is detected 10 successive times, the corresponding error code is displayed. | The machine stops immediately and turns OFF RL1 (main). |  |


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Motor abnormality | F33-01 | Error detection signal is detected continuously for 1 second when 2 seconds have passed since M5 (conveyance) has turned ON. | The machine stops immediately and turns OFF RL1 (main). | M5 (conveyance) PRCB (printer control board) |
|  | High fixing temperature abnormality | F34-01 | TH1 (fixing temperature /1) detects more than $220^{\circ} \mathrm{C}$ for five consecutive times in 1 second cycle. |  | PRCB (printer control board) DCPS (DC power supply unit) L2 (fixing heater lamp/1) <br> L3 (fixing heater lamp/2) <br> TH1 (fixing temperature /1) <br> TH2 (fixing temperature /2) <br> $\triangle$ WARNING <br> - When F-34-**, F35** or F-36**(Fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0 . If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire. |
|  |  | F34-02 | The output voltage of TH1 (fixing temperature /1) and TH2 (fixing temperature $/ 2$ ) is detected as abnormally high at the comparator circuit (more than $228^{\circ} \mathrm{C}$ ). |  |  |
|  | Low fixing temperature abnormality | F35-01 | TH1 (fixing temperature /1) has not reached the predefined temperature when the specified time has passed since the fixing ON control has been processed after SW2 (sub power) is turned on. |  |  |
| \% |  | F35-02 | TH1 (fixing temperature /1) detects less than $120^{\circ} \mathrm{C}$ for 5 consecutive times in 1 second cycle while the fixing ON control is processed after warm-up operation is complete. |  |  |
| $\sum^{\text {N10 }}$ |  | F35-03 | The output voltage of TH1 (fixing temperature/1) is detected as abnormality low at the comparator circuit (less than $-6^{\circ} \mathrm{C}$ ). |  |  |
|  | Fixing sensor abnormality | F36-01 | TH1 (fixing temperature /1) has not reached $50^{\circ} \mathrm{C}$ when the specified time has passed since the fixing ON control has been processed after SW2 (sub power) is turned on. |  |  |
|  |  | F36-02 | The output voltage of TH2 (fixing temperature $/ 2$ ) is detected as abnormality low (less than $-6^{\circ} \mathrm{C}$ ) or abnormally high (more than $240.5^{\circ} \mathrm{C}$ ) at the comparator circuit. |  |  |
|  | Scanner abnormality | F41-01 | PS61 (scanner HP) does not turn ON within 5 seconds since M11 (scanner) has turned ON . |  | M11 (scanner) PS61 (scanner HP) SCDB (scanner drive board) PRCB (printer control board) |
|  | Motor abnormality | F41-02 | The lock signal for M15 (polygon) is not detected within 25 seconds from the switch drive when M15 starts or when switching the rotation speed. |  | M15 (polygon) PMDB (polygon drive board) PRCB (printer control board) |


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Fan abnormality | F42-01 | An error for EM signal is detected when 2 seconds have passed since FM9 (scanner cooling) has turned ON. The error does not clear after 2 seconds from the OFF/ON operation. | The machine stops immediately and turns OFF RL1 (main). | FM9 (scanner cooling) SCDB (scanner drive board) PRCB (printer control board) |
|  |  | F42-02 | An error for WRFAN1_EM signal is detected when 2 seconds have passed since FM2 (write section cooling) has turned ON. The error does not clear after2seconds from the OFF/ON operation. |  | FM2 (write section cooling) PRCB (printer control board) |
|  | Image control abnormality | E46-01 | During image write, APC cannot be performed for sub-scanning beam correction. <br> The 12 VDC power for driving the laser is not supplied. <br> The laser does not turn ON due to defective laser, or MPC value is different. <br> The index sensor cannot detect the laser because the polygon mirror does not rotate, the index sensor is displaced, or the index sensor is defective. | If copy operation is being performed, the machine stops after paper ejection. RL1 (main) is turned OFF. | Write section ICB (image control board) power connector |
|  |  | E46-02 | Illegal address of FIFO for scanner. During image read, image data compression is not completed normally. |  | ICB (image control board) MU-401/402 |
|  |  | E46-03 | Illegal address of FIFO for printer. During image read, image data decompression is not completed normally. |  |  |
|  |  | E46-05 | The FIFO of the compression / expansion chip caused an error interrupt. |  |  |
|  |  | E46-06 | Decompression error of image data. |  |  |
|  |  | E46-08 | When APC is performed, the index sensor output does not change. |  | Write section ICB (image control board) power connector |
|  |  | E46-12 | Compression of the read image and decompression in the page memory are not completed within the specified time after negation of SVV. |  | ICB (image control board) |


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|  | Classification | $\begin{gathered} \text { Warning } \\ \text { Code } \end{gathered}$ | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Image control abnormality | E46-24 | Shading correction error (GA error) | If copy operation is being performed, the machine stops after paper ejection. RL1 (main) is turned OFF. | ICB (image control board) ICB program |
|  |  | E46-25 | AOC/AGC error <br> - The light blocking cover and lens cover are removed from the scanner section. <br> - The A/D converter board connector is disconnected. <br> - The power cable of $A / D$ converter board is disconnected. <br> - The IC protector on the A/D converter board is blown out. <br> - The exposure lamp intensity is excessive. <br> - The exposure lamp does not light. |  | ADB (AD conversion board) <br> L1 (exposure lamp) |
|  |  | E46-26 | Correction data saved on a resolution basis is not found. | Error code is not displayed on the operation panel. It is displayed only in data collection, list output, and KRDS. | ICB (image control board) |
|  |  | E46-27 | The density correction $\gamma$ curve cannot be generated properly. |  |  |
|  |  | E46-29 | Calibration start error. | If copy operation is being performed, the machine stops after paper ejection. RL1 (main) is turned OFF. | ICB (image control board) ICB program |
|  |  | E46-30 | Calibration end error |  |  |
|  |  | E46-31 | An attempt was made to perform APC initial sampling before completion of MPC. |  |  |
|  |  | E46-32 | An attempt was made to perform MPC during APC. |  |  |
|  |  | E46-33 | An attempt was made to perform subscan beam correction before completion of APC or MPC. |  |  |
|  |  | E46-34 | An attempt was made to perform subscan beam interval correction although the image write clock was abnormal. |  |  |
|  |  | E46-35 | Dual page memory area error Due to the image area abnormality on the memory, image is not decompressed on the memory. |  |  |


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Imagecontrol abnormality | E46-91 | The header read address is illegal. | If copy operation is being performed, the machine stops after paper ejection. RL1 (main) is turned OFF. | ICB (image control board) MU-401/402 |
|  |  | E46-99 | E-RDH memory initialization error E-RDH memory may not be connected properly. |  |  |
|  | Communication abnormality | E49-01 | IP-511 connection was confirmed, but it does not operate normally. |  | IP-511 system board |
|  |  | E49-02 | Transmission from IP-511 to ICB (Image control board) failed. |  |  |
|  |  | E49-03 | Direct Memory Access error |  |  |
|  |  | E49-04 | IP-511 builtin HDD error. |  | IP-511 HDD |
|  |  | E49-05 | IP-511 cooling fan lock error. |  | IP-511 cooling fan motor |
|  |  | E50-01 | Main body drive serial input error 1. Serial data is not received from the main body drive section within 0.5 second after reception of power-on ACK. | The machine stops immediately. RL1 (main) is turned OFF. | PRCB (printer control board) |
|  |  | E50-02 | Main body drive serial input error 2. Serial data is not received from the main body drive section within 0.5 second after reception of power-on ACK. |  |  |
|  |  | E50-03 | Main body drive serial input error 3. Serial data is not received from the main body drive section within 0.5 second after reception of power-on ACK. |  |  |
|  |  | E50-04 | Main body drive serial input error 4. Serial data is not received from the main body drive section within 0.5 second after reception of power-on ACK. |  |  |
|  |  | E50-05 | Drive board communication reception error detection fault. <br> A reception error occurred during reception of drive board serial data, or a data checksum error or ID information error occurred four consecutive times although a resent request had been issued three times. |  | PRCB (printer control board) Drive boards |
|  |  | E50-10 | Image control board communication error. <br> Initial data is not received from ICB (image control board) within 10 seconds after power-on. |  | PRCB (printer control board) ICB (image control board) |
|  |  | E50-11 | Image control board communication serial reception error detection fault. |  | ICB (image control board) |


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|  |  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 |  | FS-110/210/ 111 abnormality | F77-3 | After M705 (alignment/U) starts operation, PS708 (alignment HP/U) does not turn OFF within the specified time, or does not turns ON after OFF. | The machine and the finisher stop immediately and RL1 (main) is turned OFF. | FNSCB (FNS control board) RB (relay board) M705 (alignment/U) PS708 (alignment HP/U) |
|  |  |  | F77-4 | After M707 (paper feed roller) starts operation, it does not reach the prescribed speed within the specified time. |  | FNSCB (FNS control board) M707 (paper exit roller) |
|  |  |  | F77-5 | After M708 (paper exit opening) starts operation, its open/close operation does not finish within the specified time. <br> PS712 (paper exit opening HP) does not turn ON or OFF. |  | FNSCB (FNS control board) M708 (paper exit opening) PS712 (paper exitopening HP) |
|  |  |  | F77-6 | After M711 (stapler movement) starts operation, PS711 (stapler movement HP) does not turn OFF, or does not turn ON after OFF. |  | FNSCB (FNS control board) RB (relay board) M711 (stapler movement) PS711 (stapler movement HP) |
| 4 | ¢ | FS-110/210 abnormality | F77-7 | After M704 (clincher rotation) starts operation, PS714 (clincher rotation HP) does not turn OFF, or does not turn ON after OFF. |  | FNSCB (FNS control board) RB (relay board) M704 (clincher rotation) PS714 (clincher rotation HP) |
| 4 |  | $\begin{aligned} & \text { FS-110/210/ } \\ & 111 \\ & \text { abnormality } \end{aligned}$ | $\begin{array}{\|l} \hline \text { F77-8 } \\ \text { (FS-110/ } \\ 210) \end{array}$ | After M706 (stapler rotation) starts operation, PS713 (stapler rotation HP) does not turn OFF, or does not turn ON after OFF. |  | FNSCB (FNS control board) RB (relay board) M706 (stopler rotation/R) PS713 (stapler rotation HP) |
|  |  |  | $\begin{array}{\|l\|} \hline \begin{array}{l} \text { F77-8 } \\ (\text { FS-111 } \end{array} \\ \hline \end{array}$ | After M704 (stapler rotation) starts operation, PS714 (stapler rotation HP) does not turn ON, or does not turn ON after OFF. |  | $\begin{aligned} & \text { FNS CB (FNS control board) } \\ & \text { M704 (stapler rotation) } \\ & \text { PS714 (stapler rotation HP) } \end{aligned}$ |
|  |  |  | $\begin{aligned} & \hline \text { F77-11 } \\ & \text { (FS-110/ } \\ & 210) \end{aligned}$ | After M714 (stapler/F) starts operation, PS731 (stapler HP/F) does not turn ON within the specified time. |  | FNSCB (FNS control board) RB (relay board) M714 (stapler /F) PS731 (stapler HP/F) |
|  |  |  | $\begin{array}{\|l\|} \hline \text { F77-11 } \\ (\text { FS-111) } \end{array}$ | After M724 (stapler /F) starts operation, PS734 (stapler HP/F) does not turn ON within the predefined time. |  | FNS CB (FNS control board) M724 (stapler /F) PS734 (stapler HP/F) |
|  |  |  | $\begin{array}{\|l} \hline \text { F77-12 } \\ \text { (FS-110/ } \\ 210) \end{array}$ | After M709 (stapler /R) starts operation, PS730 (stapler HP/R) does not turn ON within the specified time. |  | FNSCB (FNS control board) RB (relay board) M709 (stapler /R) PS730 (stapler HP/R) |
|  |  |  | $\begin{array}{\|l} \hline F 77-12 \\ (\text { FS-111) } \end{array}$ | After M722 (stapler /R) starts operation, PS731 (stapler HP/R) does not turn ON within the predefined time. |  | FNS CB (FNS control board) M722 (stapler /R) PS731 (stapler HP/R) |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | FS-110/210 abnormality | F77-13 | After M715 (clincher /F) starts operation, PS733 (clincher HP/F) does not turn ON within the specified time. | The machine and the finisher stop immediately and RL1 (main) is turned OFF. | FNSCB (FNS control board) RB (relay board) M715 (clincher /F) PS733 (clincher HP/F) |
|  |  | F77-14 | After M710 (clincher /R) starts operation, PS732 (clincher HP/R) does not turn ON within the specified time. |  | FNSCB (FNS control board) M710 (clincher /R) PS732 (clincher HP/R) |
|  |  | F-77-15 | M1 (FNS conveyance) does not reach the prescribed speed within the specified time after the start of its operation. |  | FNS CB (FNS control board) M1 (FNS conveyance) |
|  | FS-210 abnormality | F77-21 | After M718 (folding stopper) starts operation, PS723 (folding stopper HP) does not turn ON within the specified time. |  | FNSCB (FNS control board) RB (relay board) M718 (folding stopper) PS723 (folding stopper HP) |
| $\underset{\sim}{\infty}$ |  | F77-22 | After M716 (alignment/L) starts operation, PS724 (alignment HP/L) does not turn ON within the specified time. |  | FNSCB (FNS control board) RB (relay board) M716 (alignment/L) PS724 (alignment/L) |
|  |  | F77-25 | PS22(folding knife HP) does not go ON within the specified time after M19(folding knife) starts operation of HP detection. |  | FNS CB (FNS control board) M19 (folding knife) PS22 (folding knife HP) |
|  |  | F77-26 | After M720 (folding conveyance) starts operation, it does not reach the prescribed speed within the specified time. |  | FNSCB (FNS control board) M720 (folding conveyance) |
|  | PI-110 abnormality | F77-41 | After M202 (tray up/down/L) starts operation, PS209 (tray upper limit /L) or PS210 (tray lower limit /L) do not turn ON within the specified time. |  | FNSCB (FNS control board) PIDB (PI drive board) M202 (tray up/down/L) M209 (tray upper limit/L) PS210 (tray lower limit /L) |
|  |  | F77-42 | After M201 (tray up/down/ U) starts operation, PS204 (tray upper limit /U) or PS205 (tray lower limit /U) do not turn ON within the specified time. |  | FNSCB (FNS control board) PIDB (PI drive board) M201 (tray up/down/U) PS204 (tray upper limit/U) PS205 (tray lower limit /U) |
|  |  | F77-43 | After M203 (PI conveyance) starts operation, it does not reach the prescribed speed within the specified time. |  | FNSCB (FNS control board) M203 (PI conveyance) |
|  | PK-120 abnormality | F77-44 | PS803 (punch shift HP) does not turn ON within the specified time after M802 (punch shift) operation has been started. |  | FNSCB (FNS control board) PKDB (PK drive board) M801 (punch) PS803 (punch HP) |


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|  | Classification | Warning Code | Cause | Machine response | Estimated abnormal parts |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | PZ-108/109 <br> Akit abnormality | F77-46 | EM signal abnormality is detected within the specified time after FM701 (stacker fan) is turned ON. | The machine and the finisher stop immediately and RL1 (main) is | RB (relay board) FNSCB (FNS control board) FM701 (stacker fan) |
|  | FNS/PK-120 abnormality | F77-47 | Communication abnormality occurred between FNS and PK-120. Abnormality remains even when retry operation is executed four times. | turned OFF. | RB (relay board) FNSCB (FNS control board) PKDB (PK drive board) |
|  | $\begin{aligned} & \text { PZ-108/109 } \\ & \text { abnormality } \end{aligned}$ | F77-52 | PS3 (1st stopper HP) does not turn ON within the specified time after M2 (1st stopper) has searched the HP. |  | $\begin{aligned} & \hline \text { PZCB (PZ control board) } \\ & \text { M2 (1st stopper) } \\ & \text { PS3 (1st stopper HP) } \end{aligned}$ |
|  |  | F77-53 | PS2 (2nd stopper HP) does not turn ON within the specified time after M3 (2nd stopper) has searched the HP. |  | PZCB (PZ control board) <br> M3 (2nd stopper) <br> PS2 (2nd stopper HP) |
|  | $\begin{aligned} & \text { PK-110/120 } \\ & \text { abnormality } \end{aligned}$ | F77-54 | After MC801 (punch) starts operation, PS801 (punch HP) does not turn ON within the specified time. |  | FNSCB (FNS control board) PKDB (PK drive board) M801 (punch) PS801 (punch HP) |
|  | $\begin{aligned} & \text { PZ-108/109 } \\ & \text { abnormality } \end{aligned}$ | F77-55 | PS4 (punch shift HP) does not turn ON within the specified time after M5 (punch shift) has started to search the HP. |  | M5 (punch shift) PS4 (punch shift HP) PZCB (PZ control board) |
|  |  | F77-56 | Abnormality is found in EM signal of M10 (conveyance motor fan) within the specified time after M10 has been turned ON, and the abnormality remains even when retry operation is executed 3 times after it is turned OFF. |  | M10 (conveyance motor fan) PZCB (PZ control board) |
|  |  | F77-57 | M4 (punch) does not turn OFF within the specified time after it has started the operation. |  | M4 (punch) PZCB (PZ control board) |
|  |  | F77-58 | After M8 (Punch switching motor) searches home position, MS2 (Punch switching MS) does not switch from ON to OFF/OFF to ON. |  | M8 (Punch switching motor) MS2 (Punch switching MS) PZCB (PZ control board) |
|  | $\begin{aligned} & \text { FS-110/210 } \\ & \text { abnormality } \end{aligned}$ | F77-81 | After MC712 (gate drive) starts operation, PS716 (gate HP) does not turn ON within the specified time or does not turn OFF after ON. |  | FNSCB (FNS control board) RB (relay board) M712 (gate drive) PS716 (gate HP) |
| 4 | $\begin{aligned} & \hline \text { FS-110/210/ } \\ & 111 \\ & \text { abnormality } \end{aligned}$ | F77-91 | Communication abnormality in FNS CB (FNS control board) when subCPU receives data. |  | FNS CB (FNS control board) |
|  |  | F77-92 | Communication abnormality in FNS CB (FNS control board) when main CPU receives data. |  |  |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-47-3$ | ADDITION |



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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-47-4$ | ADDITION |

For the following abnormalities, the user can disconnect the faulty unit temporarily to continue using the machine.
When an abnormality occurs, press the reset button following the LCD message, and turn the SW2 (sub power) OFF/ON. This allows temporary use of machine until the SW2 (sub power) is turned OFF/ON next time.

| Warning code | Cause | Unit to be disconnected |
| :---: | :---: | :---: |
| F18-10 | Tray 1 up drive motor abnormality | Tray 1 |
| F18-11 | Tray 1 up abnormality |  |
| F18-20 | Tray 2 up drive motor abnormality | Tray 2 |
| F18-21 | Tray 2 up abnormality |  |
| F18-30 | Tray 3 up drive motor abnormality | Tray 3 |
| F18-31 | Tray 3 up abnormality |  |
| F18-40 | Tray 4 up drive motor abnormality | Tray 4 (7255/7272) |
| F18-41 | Tray 4 up abnormalityj |  |
| F13-02 | LCT paper feed motor abnormality | LCT |
| F18-50 | LCT UP/DOWN motor abnormality |  |
| F46-40 to 43 | HDD abnormality | HDD |
| F62-01 | DF motor cooling fan abnormality | RADF |
| F77-22,25,26 | Fold, stitch and fold, three-fold abnormality | Fold, stitch and fold, three-fold |
| F71-41 to 43 | Pl abnormality | PI |
| F77-46,52,53 | Stacker fan, PZ folding abnormality | Z-folding |
| F77-44,47,55 | PK, PZ punch shift motor abnormality | PK, PZ |


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-47-5$ | ADDITION |

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| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
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| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-47-6$ | ADDITION |

## TIMING CHART

## [1] 7165 Timing Chart (1)

A4, life size, 1-1 mode, Tray 1, reversed paper exit, non AE, 2 sets

[2] 7165 Timing Chart (2)
A4, life size, 1-2 mode, Tray 1, 2 sets

[3] 7272 Timing Chart (1)
A4, life size, 1-1 mode, Tray1, face-up paper exit, non AE, 2 sets

$7272 f s 5019$

| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL |  | Dec. 2003 | $5-49-1$ | ADDITION |

## [4] 7272 Timing Chart (2)

A4, life size, 1-2 mode, Tray1, 2 sets


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-49-2$ | ADDITION |

4 [5] DF-316/DF-322 Timing Chart (1)
A4, 3 originals (single side)


## [6] DF-316/DF-322 Timing Chart (2)

A4, 3 originals (double side)


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-51$ | REPLACEMENT |

## [7] LT-402/LT-412 Timing Chart

A4, life size, 1-1 mode, non $A E$, 2 sets

[8] FS-110/FS-210 TIming Chart (1)
Sort, A4, 2 originals (single side), 3 sets
( $<$


- Start signal for FNS ON

| Symbol |  |  |
| :---: | :---: | :---: |
|  |  |  |
| PS704 | FNS entrance PS |  |
| M701 | FNS conveyance | $670 \mathrm{~mm} / \mathrm{s}$ |
|  |  | $400 \mathrm{~mm} / \mathrm{s}$ |
| M702 | Shift motor |  |
| PS718 | Shift HP PS |  |
| SD704 | Paper exit SD |  |
| M707 | Paper exit roller motor | 253mm/s |
|  |  | $400 \mathrm{~mm} / \mathrm{s}$ |
| PS706 | Main tray exit PS |  |
| PS702 | Tray upper limit PS |  |
| M703 | Tray up/down motor | UP |
|  |  | DOWN |


(ब)
[9] FS-110/FS-210 Timing Chart (2)
2 staples (flat), A4, 2 originals (single side), 6 sheets (single side)



## [10] FS-110/FS-210 Timing Chart (3)

Stitch and fold, A4, 2 originals (single side), 6 sheets (single side)


## © [11] FS-110/FS-210 Timing Chart (4)

Three-folding/A4R/3 sheets of originals/2 sets setting/single side



## 2. [12] Pl-110 Timing Chart

Pl automatic paper feed (bottom) /2 staples (flat) /A4/2 sheets of original/2 sets setting/single side


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica 7155/7165 | SERVICE HANDBOOK | $\hat{2}$ | May 2002 | $5-56-1$ | ADDITION |

© [13] PK-110 Timing Chart
Punch/2 staples (flat) /A4/2 sheets of original/3 sets setting/single side


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica 7155/7165 | SERVICE HANDBOOK | $\widehat{1}$ | Nov. 2001 | $5-56-2$ | ADDITION |

## 2. [14] PK-120 Timing Chart

Punch/2 staples (flat) /A4/2 sheets of original/3 sets setting/single side


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| KOnica7155/7165 | SERVICE HANDBOOK | @ | May 2002 | $5-56-3$ | ADDITION |

4. [15] PZ-108/PZ-109 Timing Chart

Z-folding + punch mode, A3, 3 originals (single side)


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-56-4$ | ADDITION |

## 4. [16] FS-111 Timing Chart (1)

Sort, A4, 2 originals, 3 sets, 1-1


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-56-5$ | ADDITION |

4. [17] FS-111 Timing Chart (2)

Flat, A4, 2 originals, 3 sets, 1-1


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | $\widehat{4}$ | Dec. 2003 | $5-56-6$ | ADDITION |

## 4 [18] SF-101 Timing Chart

Sort, A4, 2 originals, 2 sets, 1-1


| MODEL | MANUAL | REVISED EDITION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-56-7$ | ADDITION |

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## OVERALL WIRING DIAGRAM

4 [1] DF-316/DF-322 Overall Wiring Diagram


| MODEL | MANUAL | REVISED REVISION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-57$ | REPLACEMENT |




[How to see the diagram]
1.The signals shown reflect levels present
under normal iding conditions with
the main switch turned ON.
Wiring symbols in the figure are as follows.


Crimp Relay connector
(2) Signal types are as follows:

H High level
$\square$ Low level

* Analog signal/Unspecified signal P Pulse signal
(3) RC is the flat cable. (4) Signal flow

The solid black circle $(\bullet)$ among
the connector symbols ( O ) indicates the direction of signal flow. Example)


[How to see the diagram]
1.The signals shown reflect levels present
under normal idling conditions with
the main switch turned ON .
2. Wiring symbols in the figure are as follows.

(3) RC is the flat cable.
(4) Signal flow

The solid black circle ( $\bullet$ ) among
the connector symbols ( O ) indicates the direction of signal flow. Example)

(2) Signal types Ree as follows:
[ H High level
$\square$ Low level

* Analog signal/Unspecified signa

Pulse signal
May 2002 5 DDITION



| MODEL | MANUAL | REVISED REVISION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-63$ | ADDITION |



## [How to see the diagram]

1.The signals shown reflect levels present
under normal idling conditions with
the main switch turned ON .
2. Wiring symbols in the figure are as follows.
(1) [Symbol]

[ H High level
$\square$ Low level

* Analog signal/Unspecified signal

P Pulse signal
(3) RC is the flat cable.
(4) Signal flow

The solid black circle ( $)$ among
the connector symbols ( O )
indicates the direction of signal flow.
indicates the


| MODEL | MANUAL | REVISED REVISION | DATE | PAGE | METHOD |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7155 / 7165 / 7255 / 7272$ | SERVICE MANUAL | 4 | Dec. 2003 | $5-64$ | ADDITION |



## APPENDIX

2 [1] 7155/7165 Overall Wiring Diagram 1/4







## APPENDIX

2 [1] 7155/7165 Overall Wiring Diagram 4/4



## 4 [2] 7255/7272 Overall Wiring Diagram 1/4


[TRAY4



$\qquad$


## 



$\qquad$

 Mivivive


$\square \underset{\square}{\square}$
PRCB $1 / 2$





$\qquad$






## APPENDIX

4. [2] 7255/7272 Overall Wiring Diagram 4/4

| VERTICAL PAPER FEED |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |





| EXIT <br>  |  |
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|  |  |


| $\int_{0}^{(8)}$ | 囯园 |
| :---: | :---: |
|  |  |
|  |  |
|  |  |









H High level
L Low level

* Analog signal/Unspecified signal


