Buffer Pass Unit Machine Code: M379

Service Manual

31 March, 2009 Subject to change

Safety, Conventions, Trademarks

Conventions

Symbol	What it means
<u>C</u> I	Core Tech Manual
P	Screw
et i	Connector
C	E-ring
$\langle 7 \rangle$	C-ring
Ę,	Harness clamp
FFC	Flexible Film Cable



d014c001

The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.

Warnings, Cautions, Notes

In this manual, the following important symbols and notations are used.

• A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

• A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

🔿 Important

• Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

Note

• This information provides tips and advice about how to best service the machine.

General Safety Instructions

For your safety, please read this manual carefully before you use this product. Keep this manual handy for future reference.

Safety Information

Always obey the following safety precautions when using this product.

Safety During Operation

In this manual, the following important symbols and notations are used.

Switches and Symbols

Where symbols are used on or near switches on machines for Europe and other areas, the meaning of each symbol conforms with IEC60417.



Responsibilities of the Customer Engineer

Customer Engineer

Maintenance shall be done only by trained customer engineers who have completed service training for the machine and all optional devices designed for use with the machine.

Reference Material for Maintenance

- Maintenance shall be done using the special tools and procedures prescribed for maintenance of the machine described in the reference materials (service manuals, technical bulletins, operating instructions, and safety guidelines for customer engineers).
- In regard to other safety issues not described in this document, all customer engineers shall strictly obey procedures and recommendations described the "CE Safety Guide".
- Use only consumable supplies and replacement parts designed for use of the machine.

Before Installation, Maintenance

Shipping and Moving the Machine

- Work carefully when lifting or moving the machine. If the machine is heavy, two or more customer engineers may be required to prevent injuries (muscle strains, spinal injuries, etc.) or damage to the machine if it is dropped or tipped over.
- Personnel moving or working around the machine should always wear proper clothing and footwear. Never wear loose fitting clothing or accessories (neckties, loose sweaters, bracelets, etc.) or casual footwear (slippers, sandals, etc.) when lifting or moving the machine.
- Always unplug the power cord from the power source before you move the product. Before you move the product, arrange the power cord so it will not fall under the product.

Power

WARNING

- Always disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before doing any maintenance procedure.
- After switching off the machine, power is still supplied to the main machine and other devices. To prevent electrical shock, switch the machine off, wait for a few seconds, then unplug the machine from the power source.

- Before you do any checks or adjustments after turning the machine off, work carefully to avoid injury. After removing covers or opening the machine to do checks or adjustments, never touch electrical components or moving parts (gears, timing belts, etc.).
- After turning the machine on with any cover removed, keep your hands away from electrical components and moving parts. Never touch the cover of the fusing unit, gears, timing belts, etc.

Installation, Disassembly, and Adjustments

- After installation, maintenance, or adjustment, always check the operation of the machine to make sure that it is operating normally. This ensures that all shipping materials, protective materials, wires and tags, metal brackets, etc., removed for installation, have been removed and that no tools remain inside the machine. This also ensures that all release interlock switches have been restored to normal operation.
- Never use your fingers to check moving parts causing spurious noise. Never use your fingers to lubricate moving parts while the machine is operating.

Special Tool

- Use only standard tools approved for machine maintenance.
- For special adjustments, use only the special tools and lubricants described in the service manual. Using tools incorrectly, or using tools that could damage parts, could damage the machine or cause injuries.

During Maintenance

General

- Before you begin a maintenance procedure: 1) Switch the machine off, 2) Disconnect the power plug from the power source, 3) Allow the machine to cool for at least 10 minutes.
- Avoid touching the components inside the machine that are labeled as hot surfaces.

Safety Devices

WARNING

- Never remove any safety device unless it requires replacement. Always replace safety devices immediately.
- Never do any procedure that defeats the function of any safety device. Modification or removal of a safety device (fuse, switch, etc.) could lead to a fire and personal injury. Always test the operation of the machine to ensure that it is operating normally and safely after removal and replacement of any safety device.
- For replacements use only the correct fuses or circuit breakers rated for use with the machine. Using replacement devices not designed for use with the machine could lead to a fire and personal injuries.

Organic Cleaners

- During preventive maintenance, never use any organic cleaners (alcohol, etc.) other than those described in the service manual.
- Make sure the room is well ventilated before using any organic cleaner. Use organic solvents in small amounts to avoid breathing the fumes and becoming nauseous.
- Switch the machine off, unplug it, and allow it to cool before doing preventive maintenance. To avoid fire or explosion, never use an organic cleaner near any part that generates heat.
- Wash your hands thoroughly after cleaning parts with an organic cleaner to contamination of food, drinks, etc. which could cause illness.
- Clean the floor completely after accidental spillage of silicone oil or other materials to prevent slippery surfaces that could cause accidents leading to hand or leg injuries. Use "My Ace" Silicone Oil Remover (or dry rags) to soak up spills. For more details, please refer to Technical Bulletin "Silicone Oil Removal" (A024-50).

Power Plug and Power Cord

WARNING

- Before serving the machine (especially when responding to a service call), always make sure that the
 power plug has been inserted completely into the power source. A partially inserted plug could lead
 to heat generation (due to a power surge caused by high resistance) and cause a fire or other
 problems.
- Always check the power plug and make sure that it is free of dust and lint. Clean it if necessary. A dirty plug can generate heat which could cause a fire.

- Inspect the length of the power cord for cuts or other damage. Replace the power cord if necessary. A frayed or otherwise damaged power cord can cause a short circuit which could lead to a fire or personal injury from electrical shock.
- Check the length of the power cord between the machine and power supply. Make sure the power cord is not coiled or wrapped around any object such as a table leg. Coiling the power cord can cause excessive heat to build up and could cause a fire.
- Make sure that the area around the power source is free of obstacles so the power cord can be removed quickly in case of an emergency.
- Make sure that the power cord is grounded (earthed) at the power source with the ground wire on the plug.
- Connect the power cord directly into the power source. Never use an extension cord.
- When you disconnect the power plug from the power source, always pull on the plug, not the cable.

After Installation, Servicing

Disposal of Used Items

WARNING

- Never incinerate used toner or toner cartridges.
- Toner or toner cartridges thrown into a fire can ignite or explode and cause serious injury. At the work site always carefully wrap used toner and toner cartridges with plastic bags to avoid spillage before disposal or removal.

- Always dispose of used items (developer, toner, toner cartridges, OPC drums, etc.) in accordance with the local laws and regulations regarding the disposal of such items.
- To protect the environment, never dispose of this product or any kind of waste from consumables at a household waste collection point. Dispose of these items at one of our dealers or at an authorized collection site.
- Return used selenium drums to the service center for handling in accordance with company policy regarding the recycling or disposal of such items.

Safety Instructions for this Machine

Prevention of Physical Injury

- 1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.
- 2. The plug should be near the machine and easily accessible.
- 3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
- 4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
- 5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green), keep hands away from the mechanical and the electrical components as the machine starts making copies as soon as the warm-up period is completed.
- 6. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.
- 7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

Observance of Electrical Safety Standards

- 1. The machine and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
- The NVRAM on the system control board has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM must be handled in accordance with local regulations.

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1. Replacement and Adjustment

Exterior Covers

- Disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before starting the following procedure.
- Do not pull out the buffer pass unit drawer until this unit has been docked to the mainframe. Otherwise, the buffer pass unit can fall down.

Rear Cover



m379r514

1. Rear cover [A] (🕅 x 5)

Top Cover

1. Open the front door.



m379r512

- 2. Remove two screws on the front upper side (\mathscr{P} x 2)
- 3. Rear cover (🐨 p.11)



m379r517

4. Push the top cover [A] to the front side, and then remove it.

Right Cover



m379r513

1. Right cover [A] (🖗 x 6)

Left Cover



m379r515

1. Left cover [A] (🖗 x 6)

Operation Panel

1. Top Cover (🐖 p.11)



m379r520

2. Operation Panel (⋛ x 2, 🕬 x 1)

Drive Components

- Disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before starting the following procedure.
- Do not pull out the buffer pass unit drawer until this unit has been docked to the mainframe. Otherwise, the buffer pass unit can fall down.

Drive Motor

- 1. Rear cover (p.11)
- 2. Controller board bracket (MPP p.27)



m379r603

- 3. Drive Motor [A] (🖉 x 4, 💷 x 1)
- There are two drive motors (right and left) in the buffer pass unit. The both removal procedures are identical.

Drive Motor Base

Removing the Drive Motor Base

- 1. Rear cover (🗺 p.11)
- 2. Controller board bracket (p.27 "Controller Board Bracket")



m379r600

3. Drive Motor Bases [A] (🖗 x 3, 💷 x 1 each)

Reinstall the Drive Motor Base

- 1. Open the front door.
- 2. Turn the C2 lever completely counterclockwise.
- 3. Pull out the paper path unit slightly (IPP p.18 "Lower Cooling Fans").
- 4. Install the drive motor base ($\mathscr{F} \times 3$).
- 5. Push the paper path unit completely and close the front door.
- 6. Attach the rear cover.

Cooling and Exhaust Fans

- Disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before starting the following procedure.
- Do not pull out the buffer pass unit drawer until this unit has been docked to the mainframe. Otherwise, the buffer pass unit can fall down.

Cooling Fans

Upper Cooling Fans

1. Open the front door.





2. Remove two screws and the bracket [A].



m379r544

3. Disconnect the harness [A] (💷 x 1).



m379r546

4. Pull out the upper cooling fan unit [A].



m379r546

m379r547

- 5. Upper cooling fan bracket [A] (🌮 x 1, 💷 x 2, 🛱 x 2)
- 6. Upper cooling fans [B] (x 2 each)

Reinstalling the upper cooling fans

Make sure that the decals on the fans face downward when reinstalling the upper cooling fans.

Lower Cooling Fans

1. Open the front door.



m379r512

2. Turn the C2 handle [A] counter-clockwise.



m379r531

3. Pull out the paper path unit [A]

WARNING

- Take care to pull out the paper path unit so that the buffer pass unit does not fall down to the front. It is because the weight of the paper path unit is heavier than that of the buffer pass unit.
- 4. Left cover (🗰 p.13)



m379r548a

5. Lower cooling fan cover [A] ($\mathscr{P} \times 2$)



Reinstalling the lower cooling fans

Make sure that the decals on the fans face upward when reinstalling the lower cooling fans.

Exhaust Fans

Upper Exhaust Fans

1. Rear cover (🐨 p.11)



2. Upper exhaust fans [A] (x 2 each, 💷 x 1)

Reinstalling the upper exhaust fans

Make sure that the decals on the fans are upside down and face the rear side when reinstalling the upper exhaust fans.

Lower Exhaust Fans

1. Rear cover (💭 p.11)



m379r542

2. Lower exhaust fans [A] (x 2 each, 🕬 x 1)

Reinstalling the lower exhaust fans

Make sure that the decals on the fans face the rear side when reinstalling the lower exhaust fans.

Sensors and Switches

ACAUTION

- Disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before starting the following procedure.
- Do not pull out the buffer pass unit drawer until this unit has been docked to the mainframe. Otherwise, the buffer pass unit can fall down.

Transport Sensors

1. Open the front door.



m379r512

2. Turn the C2 handle [A] completely counterclockwise.



m379r531

3. Pull out the paper path unit [A].



m379r532

4. C2 handle [A] (🖗 [B] x 1)



m379r531a

5. Front inner cover [A] (🕅 x 6)



m379r587

- 6. Remove sensors bracket (each ₽ x1, ♀ x1, ♥ x1,
 - [1] Transport Sensor 1
 - [2] Transport Sensor 2
 - [3] Transport Sensor 3
 - [4] Transport Sensor 4
 - [5] Transport Sensor 5
 - [6] Transport Sensor 6
 - [7] Transport Sensor 7
 - [8] Transport Sensor 8



m379r586

7. Transport sensor [A] (hook x 4, 📬 x 1)

Switches

Paper Path Unit Set Switch

- 1. Rear cover (🐖 p.11)
- 2. Controller board bracket (MPP p.27)



m379r560

m379r562

1

Front Door Switch

- 1. Left cover (🐨 p.13)
- 2. Open the front door.
- 3. Pull out the paper path unit.
- 4. Lower cooling fan cover (Mer p.18 "Lower Cooling Fans")



m379r569





m379r568

- 6. Front door switch bracket cover [A] (♂ x 2, 🛱 x 1)
- 7. Front door switch bracket [B].

Electronic Components

- Disconnect the power cord from the inlet of the buffer pass unit and unplug the mainframe before starting the following procedure.
- Do not pull out the buffer pass unit drawer until this unit has been docked to the mainframe. Otherwise, the buffer pass unit can fall down.

Controller Board

Controller Board Bracket

1. Rear cover (💭 p.11).



2. Controller board bracket (P x 4, all 🕬s, all 🗐s)

Controller Board

1. Rear cover (🗺 p.11)



m379r621a

2. Controller board (🕬 x 11, 🌮 x 2, hook [A] x 4)

PSU

Removing the PSU

1. Rear cover (🐨 p.11)



2. PSU bracket (🖗 x 4, 📬 x 6, 🛱 x 2)

Reinstalling the PSU

Make sure that the power connectors should be connected correctly.



m379r629

- Upper [A]: White or blue connector.
- Lower [B]: Black or brown connector.

PSU Fuse Rating

• For replacements, use only the correct fuses rated for use with the machine. Using replacement devices not designed for use with the machine could lead to a fire and personal injuries.

Fue	Rating	
ruse	115 V	210 to 230V
FU1	15A/125Vac	8A/250125Vac
FU2	8A/125125Vac	T4A L/250125Vac

SRB

1. Rear cover (🐨 p.11)



m379r634

2. SRB (x2, 🕬 x2, hook x 2)

Interface Cable

1. Rear cover (🗺 p.11)



m379r626

2. Interface cable [A]

1. Replacement and Adjustment

2. Details

Overview

Components Layout



2

1. Upper cooling fans	9. Lower cooling fans
2. Upper exhaust fan	10. Front door switch
3. Transport roller	11. Transport sensor 5
4. Transport sensor 1	12. Transport sensor 6
5. Drive motor: right	13. Lower exhaust fans
6. Transport sensor 2	14. Transport sensor 7
7. Transport sensor 3	15. Drive motor: left
8. Transport sensor 4	16. Transport sensor 8

Drive Layout



1. Paper transport right knob

- 2. Timing belt: right side
- 3. Drive motor right
- 4. Drive motor left
- 5. Timing belt: left side
- 6. Paper transport left knob

Paper Path



m379d105

A sheet of paper is fed to the entrance [A] of the buffer pass unit from the mainframe. The drive motor right [B] turns on 1.05 seconds after the mainframe has received a print job or copy job, and then drives six transport rollers [C] at the right paper path area and feeds a sheet of paper to the left paper path area.

The drive motor left [D] turns on 1.05 seconds after the drive motor right has turned on and then drives six transport rollers [E] at the left paper path area and feeds a sheet of paper to the exit.

There are eights transport sensors in the paper path. The machine stops the machine operation if one of these sensors detects a paper jam.

Paper Cooling



There two sets of exhaust fans and two sets of cooling fans in the buffer pass unit. These fans turn on in 0.1 seconds interval as follows below after the mainframe has turned on or received a printer job or copy job.

• Upper exhaust fans [A] > lower exhaust fans [B] > upper cooling fans [C] > lower cooling fans [D]

The lower cooling fans [D] draw air in the buffer pass unit from the outside, and then move air [E] to the upper area along with the outer of the paper path. This makes the outer of the paper path cooler. Finally air around the upper area is expelled to the outside by the upper exhaust fans [A].

Also the upper cooling fans [C] draw air in the buffer pass unit from the outside, and then move air [F] to the center area along with the inner of the paper path. This makes the inner of the paper path cooler. Finally air around the center area is expelled to the outside by the lower exhaust fans [B].

Two sides of the paper path guide remove heat from a sheet of paper while a sheet of paper is being transported. As a result, a sheet of paper from the exit of this unit is properly cooled.

The fan operation time after the initializing or job end can be adjusted by SP1940-008 (adjustable from 0 to 60 minutes/ default: 10 minutes).

2. Details