High Capacity Stacker SK5000 Machine Code: D364

Service Manual

January, 2009 Subject to change

Safety, Conventions, Trademarks

Conventions

Symbol	What it means
	Core Tech Manual
Î	Screw
E	Connector
C	E-ring
	C-ring
	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 plug 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.
- 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

• Turn off the main power switch and unplug this peripheral before you do the procedures in this section.

Top Cover



- 1. Open the front upper door [A].
- 2. Remove the three screws on the front side of the top cover.





- 3. Remove the three screws on the rear side of the top cover.
- 4. Remove the top cover.

Rear Cover



1. Remove the three screws on the rear side of the top cover ($\hat{\mathscr{F}}$ x 3).



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2. Rear cover [A] (🖗 x 7)

1

Left Cover



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1. Left cover [A] (∦ x 6)

Inner Right Cover

1. Open the front door.



2. Inner right cover [A] (⋛ x 4)

Inner Left Cover

1. Open the front door.



2. Inner left cover [A] (🖗 x 4)

Front Left Cover

- 1. Left cover (🖝 p.13 "Left Cover")
- 2. Open the front door.



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3. Remove the two screws [A].

1



4. Front left cover [B].

Front Door

1. Open the front door.



- 2. Remove the two screws [A].
- 3. Open the front door [B] fully, and then remove it.

Front Upper Door Unit

- 1. Top cover (🖝 p.11 "Top Cover")
- 2. Front door (p.15 "Front Door")
- 3. Front left cover (p.14 "Front Left Cover")



4. Operation panel [A] (♂ x 2, ⇔ x 1, 🗊 x1)



5. Remove the three screws [A] on the top of the front upper door unit.





6. Remove a screw on the right side of the front upper door unit.



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7. Remove the eight screws and a bracket [B] on the front right side of the front upper door unit.



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- 8. Remove the six screws on the front left side of the front upper door unit.
- 9. Front upper door unit.

Components at the Rear

Tray Sensors

1. Rear cover (🖝 p.12 "Rear Cover")



- 2. Remove:
 - Tray HP sensor [A] (hooks, ∦ x 1)
 - Tray full sensor 4: 25% [B] (hooks, ℱ x 1)
 - Tray full sensor 3: 50% [C] (hooks, 🖗 x 1)
 - Tray full sensor 2: 75% [D] (hooks, ℱ x 1)
 - Tray full sensor 1: 100% [E] (hooks, 🖗 x 1)
 - Tray unload position sensor [F] (hooks, ℱ x 1)

Tray Set Sensor



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1. Tray set sensor bracket [A] (斧 x 1, ⊑ x 1)



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2. Remove the bracket from the tray set sensor unit ($\hat{\beta}^2 \ge 2$).



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3. Remove the spring [B] and pull out the holder [C].



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4. Tray set sensor [D] (all hooks)

Cooling Fans

1. Rear cover (🖝 p.12 "Rear Cover")



2. Cooling fan unit [A] (倉 x 4, 🗊 x 3, 🛱 x 4)



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When reinstalling the cooling fan

When you reinstall the cooling fans, make sure that these fans are installed with their decals facing the rear side.

Main Board

1. Rear cover (p.12 "Rear Cover")



2. Main board [A] (all 🕬 s, locking support [B] x 5)

PSU

1. Rear cover (p.12 "Rear Cover")



- g364r117
- 2. PSU [A] ((𝔅 [B] x 2, locking support [C] x 4, all 🖽 s)

Relay Board

1. Rear cover (🖝 p.12 "Rear Cover")



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2. Relay board [A] (all 🗐, locking support x 4)

Tray Switch

Tray Upper Limit Switch

1. Rear cover (🖝 p.12 "Rear Cover")



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2. Tray upper limit switch bracket [A] ($\hat{\not}$ x 1)



3. Tray upper limit switch [B] (∦ x 1, ⊑ x 1)

Tray Lower Limit Switch

1. Rear cover (●p.12 "Rear Cover")



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2. Tray lower limit switch bracket (in the blue circle) ($\hat{\beta}$ x 1)



3. Tray lower limit switch [A] (♂ x 1, ⊂ x 1)

Tray Safety (Jogger) Switch

1. Rear cover (🖝 p.12 "Rear Cover")



2. Tray safety (jogger) switch [A] (Ĝ² x 1, ⊑¹ x 1)

Feed Motor

1. Rear cover (🖝 p.12 "Rear Cover")

1



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2. Feed motor bracket [A] (Ĝ x 3, ⊑ x1)



3. Feed motor [B] (𝔅 x 2)

1

When reinstalling the feed motor



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1. Loosen the screw of the tension bracket [C].





2. Fasten the timing belt on the gear [D] of the feed motor.

Tray Lift Wire

Tray Lift Wire (Front)

- 1. Inner left cover (🖝 p.13 "Inner Left Cover")
- 2. Left fan (🖝 p.57 "Left Fan")



3. Remove the idle reel cover [A] from the idle reel [B] ($\ensuremath{\mathbb{C}} x$ 1)



4. Remove the drive reel cover [C] from the drive reel [D].



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5. Tray lift wire [E].

Vote

• Remove the ball at the end of the tray lift wire from the drive reel, so that the tray lift wire can be removed.



6. Remove two nuts [F].

1

Note

• You can remove the tray lift wire on the right side in the same way as the left side wire is removed.

Tray Lift Wire (Rear)

- 1. Inner left cover (p.13 "Inner Left Cover")
- 2. Left fan (🖝 p.57 "Left Fan")





- 3. Remove the drive reel cover [A] and the idle reel cover [B] ($\mathbb{C} \times 1$)
- 4. Remove the tray lift wire (rear) in the same way as the tray lift wire (front).

Note

- You can remove the tray lift wires at the right side in the same way as the left side wire is removed.
- After reinstalling all of the tray lift wires, make sure the directions of both timing belt pulleys are parallel (
 p.32 "Adjustment of Tray Lift Wire Phase")

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Adjustment of Tray Lift Wire Phase



1. Make sure the directions of both pulleys are parallel. If not, do the following steps.



2. Belt tensioner unit [A] (🖗 x 2)

1





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- 3. Remove the timing belt from the right pulley [B].
- 4. Turn the right pulley [B] and align the holes of the pulley and the main frame.

Note

• After aligning the holes, fasten the pulley with a stick so that it does not turn [C].



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- 5. Turn the tray lift motor [D] so that the holes in the left pulley [E] and the main frame are at the same position. Hold them with a stick [F].
- 6. Reinstall the timing belt.
- 7. Reinstall the belt tensioner.
- 8. Remove the sticks [C] [F].
Components on the Left Side

Tray Lift Motor Unit

1. Left cover (p.13 "Left Cover")



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2. Remove three connectors ($\bigoplus x 1$).





3. Remove the screw [A] and loosen two screws [B].

- Do not remove two screws [B]. If you do so, the tray lift motor unit can fall suddenly and may be damaged because only these screws hold the tray lift motor unit.
- 4. Hold the tray lift motor unit with two hands, and then slide it to the rear side.



5. Tray lift motor unit [C].

Note

• When installing a new tray lift motor unit, make sure that cable color matches the connector corresponding with a color mark [D] (Red to red, Blue to blue).

Tray Lift Motor Encoder Sensor

1. Left cover (p.13 "Left Cover")



d364r110

2. Remove three connectors ($\textcircled{R} \times 1$, $\textcircled{R} \times 3$).



3. Tray lift motor encoder sensor [A] (hooks)

Exit Sensor

1. Left cover (p.13 "Left Cover")



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2. Exit sensor bracket [A] (🖗 x 1)



3. Exit sensor [B] (☞ [C] x 1, 🖗 x1)

Components on the Right Side

Entrance Sensor





1. Remove the entrance sensor bracket [A] ($\hat{\not\!\!\!\!\!\!\!\!\!\!\!}^{P} x$ 1).



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2. Entrance sensor [B] (☞ [C] x 1, 🖗 x1)

Components at the Front

Tray Exit Unit

1. Inner right cover (🖝 p.13 "Inner Right Cover")





2. Release three clamps [A] and disconnect three connectors [B].





3. Remove the tray exit unit [C] ($\hat{\beta}^2 \times 2$) and pull out the tray exit unit toward you.

Side Jogger Unit

- 1. Inner right cover (p.13 "Inner Right Cover")
- 2. Tray exit unit (p.40 "Tray Exit Unit")



3. Guide mylar bracket (∦ x 2)

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1



4. Disconnect the four connectors.





5. Hold the side jogger unit [A], and then remove the side jogger unit bracket [B] ($\hat{\not}$ x 2).

• When removing the side jogger unit bracket [B], hold the side jogger unit [A] with your hand so that the side jogger unit does not fall off.



6. Side jogger unit [C].

Tray Exit Sensor

- 1. Inner right cover (🖝 p.13 "Inner Right Cover")
- 2. Tray exit unit (🖝 p.40 "Tray Exit Unit")



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3. Tray exit sensor bracket [A] (🖗 x 2)



4. Tray exit sensor [B] (☞ [C]x 1, 🖗 x1)

Stack Position Sensor

- 1. Inner right cover (p.13 "Inner Right Cover")
- 2. Tray exit unit (🖝 p.40 "Tray Exit Unit")



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3. Stack position sensor bracket [A] ($\hat{\beta}^{2} \times 1$)

1



4. Stack position sensor [B] (☞ [C] x 1, 🖗 x 1)

Horizontal Curl Sensors

- 1. Inner right cover (p.13 "Inner Right Cover")
- 2. Tray exit unit (🖝 p.40 "Tray Exit Unit")



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3. Horizontal curl sensor at front [A] and rear [B]

Front Horizontal Curl Sensor



- 1. Front horizontal curl sensor bracket ($\hat{\not\!\!\!\!\!\!\!\!\!}^{p}$ x 3)





2. Front horizontal curl sensor ($\mathbf{P} \times 1, \mathbf{R} \times 1$)

1

Rear Horizontal Curl Sensor



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1. Remove the harness from the rear horizontal curl sensor.



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1

2. Rear horizontal curl sensor ($\beta x 1$)

Tray Exit Motor

- 1. Inner right cover (p.13 "Inner Right Cover")
- 2. Tray exit unit (🖝 p.40 "Tray Exit Unit")



3. Remove the bracket [A] ($\hat{\mathscr{F}} \times 2$).



4. Tray exit motor unit [B] (𝔅 x4, 🛱 x 4, 🗊 [C] x 2)

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• During this step, check that the gear and the timing belt are also removed.



5. Tray exit motor [D] (🖗 x 2)

Tray Shift Motor

- 1. Inner right cover (🖝 p.13 "Inner Right Cover")
- 2. Tray exit unit (🖝 p.40 "Tray Exit Unit")



3. Tray shift motor bracket [A] (𝔅 x 2, ⊑҆ [B] x 1)

Note

• Remove the harness as shown by the arrow; this makes this step easier.



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4. Tray shift motor (₯ x 2)

Tray Exit Roller HP Sensor

1. Inner right cover (🖝 p.13 "Inner Right Cover")

- 2. Tray exit unit (p.40 "Tray Exit Unit")
- 3. Tray shift motor (p.49 "Tray Shift Motor")





4. Tray exit roller HP sensor (all hooks, 🗊 x 1)

Paddle Roller

- 1. Inner right cover (p.13 "Inner Right Cover")
- 2. Tray exit unit (p.40 "Tray Exit Unit")
- 3. Tray exit motor unit (p.47 "Tray Exit Motor")





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4. Tray exit left bracket [A] (斧 x 3, ⊑ଅ x1)



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5. Remove the e-ring [B].



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6. Paddle roller [C] ($\mathbb{C} \ge 2$)

Tray Empty Sensor

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")



2. Tray empty sensor [A] (⊑[™] x 1, all hooks)

Front and Rear Jogger HP Sensors

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")



2. Front and rear jogger HP sensors [A] (each 🖽 x 1)

Vertical Curl Sensors

Vertical Curl Sensor (Leading Edge)

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")



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2. Vertical curl sensor [A] (∂ x 1, 🗊 x 1, 🛱 x 1)

Vertical Curl Sensor (Trailing Edge)

1. Open the front lower door.



2. Vertical curl sensor [A] (ℰ x1, ⅆ x1, இ x1)

Front and Rear Jogger Motors

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")



2. Front jogger motor bracket [A] and rear jogger motor bracket [B] (🗊 x 1, 🖗 x 2 each)



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3. Front or rear jogger motor [C] ($\hat{\mathscr{F}} \times 2$)

Tray Safety Switch - F (Front)

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")

1



Front Door Switch

1. Open the front door.



2. Remove the vertical plate [A] ($\hat{\not{F}} \times 3$).



3. Disconnect the connector [B] ($\bigoplus x 1$, $\bigoplus x 1$).



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- 4. Remove the switch cover ($\hat{\not}$ x 2).
- 5. Front door switch (all hooks)

Front Upper Door Switch

- 1. Front door (p.15 "Front Door")
- 2. Front upper door unit (🖝 p.15 "Front Upper Door Unit")



- 3. Front door switch bracket [B] (Ĝ × 2, 🗊 [A] × 1)
- 4. Front door switch (hooks)

Left Fan

1. Inner left cover (🖝 p.13 "Inner Left Cover")



2. Left fan unit [A] (斧 x 2, ⊑ x 1)



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3. Left fan (ℱx4, x4. bundler x1, 🖼 x1)

Right Fan Unit

1. Side jogger unit (🖝 p.41 "Side Jogger Unit")



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2. Right fan unit [A] (x 4, ☞ x 1, 🌶 x 4)

Components at the Top

Proof Tray Full Sensor

1. Top cover (🖝 p.11 "Top Cover")





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2. Proof tray full sensor [A] (☞ [B] x 1, hooks)

Proof Tray Exit Sensor

1. Top cover (🖝 p.11 "Top Cover")





2. Loosen the screw, and then slide the proof tray exit sensor bracket to the front side.



3. Proof tray exit sensor (🖗 x 1, ⊑ 🖉 x 1)

Proof Path Upper Plate

1. Top cover (🖝 p.11 "Top Cover")



2. Proof path upper plate [A] (♂ x 1, 🛱 x 2, 🗊 x1)

Proof Path Lower Plate

- 1. Top cover (🖝 p.11 "Top Cover")
- 2. Proof path upper plate (
 p.61 "Proof Path Upper Plate")



3. Remove the four screws on the paper guide right lower plate.





4. Remove the three screws at the front side.







5. Paper guide right lower plate [A] (🔄 x 4)

Proof Tray Exit Motor

- 1. Rear cover (🖝 p.12 "Rear Cover")
- 2. Proof path upper plate (r p.61 "Proof Path Upper Plate")
- 3. Proof path lower plate (r p.61 "Proof Path Lower Plate")



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4. Proof tray exit motor [A] (≅ x 1, ∲ x 2)

Proof Tray Exit Sensor

- 1. Top cover (🖝 p.11 "Top Cover")
- 2. Proof path upper plate (🖝 p.61 "Proof Path Upper Plate")
- 3. Proof path lower plate (r p.61 "Proof Path Lower Plate")



4. Loosen the screw and slide the bypass entrance sensor unit as shown by the red arrow.



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5. Proof tray exit sensor (ℰ x 1, 🗊 x 1)

Top End Fence

1. Proof path upper plate (
 p.61 "Proof Path Upper Plate")



2. Remove the screw on the rear side of the top end fence.



3. Remove the two screws on the front side of the top end fence.



4. Top end fence [A]

Relay Path Upper Plate

- 1. Top cover (🖝 p.11 "Top Cover")
- 2. Open the front upper door.



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3. Relay path upper plate [A] (🖗 x 1)

Relay Path Lower Plate

1. Relay path upper plate (
 p.61 "Proof Path Upper Plate")

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2. Remove the two screws on the rear side of the relay path lower plate.



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- 3. Remove the three screws on the front side of the relay path lower plate.
- 4. Relay Path Lower Plate [A].

Leading Edge Jogger HP Sensor

1. Relay path lower plate (r p.61 "Proof Path Lower Plate")



2. Leading edge jogger HP sensor [A] (x 1, 🗊 x 1)

Leading Edge Jogger Motor

1. Relay path lower plate (p.61 "Proof Path Lower Plate")



2. Leading edge jogger motor bracket [A] (\mathbb{E} x 1, $\hat{\mathscr{F}}$ x 2)



3. Leading edge jogger motor [A] ($\hat{\mathscr{F}} \times 2$)

Operation Panel

1. Top cover (🖝 p.11 "Top Cover")



2. Operation panel [A] (♂ x 2, ⇔ x1, ♥ x 1)

Junction Gate Solenoid 1

1. Proof tray upper plate (🖝 p.61 "Proof Path Upper Plate")


2. Junction gate solenoid 1 (☞ [A] x 1, ☞ [B] x 2, ℱ [C] x2, spring [D] x 1)

Junction Gate Solenoid 2

- 1. Open the front door and the front upper door.
- 2. Top cover (p.11 "Top Cover")
- 3. Rear cover (p.12 "Rear Cover")
- 4. Tray exit unit (p.40 "Tray Exit Unit")



5. Disconnect the harness [A] of junction gate solenoid 2 (🛱 x 3).





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6. Entrance path upper plate [A] ($\hat{\beta}^2 \ge 1$)



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7. Junction gate solenoid 2 [B] (${\not\!\!\!P} x2,$ spring x 1)

2. Details

Overview

Machine Layout

Components Layout



1. Proof Tray Exit Roller	15 Tray Full Sonsor: 50%
2. Proof Tray Full Sensor	
3. Proof Tray Exit Sensor	10. Iray Full Sensor: 7.5%
4. Junction Gate 2	17. Iray Full Sensor
5. Operation Panel	18. Tray Unload Position Sensor
6 Tray Empty Sensor	19. Tray Set Sensor
7. Trav Evit Sensor	20. Stack Tray
	21. Lift Wire
8. Junction Gate 1	22. Tray Lift Roller
9. Entrance Sensor	23. Exit Roller
10. Entrance Roller	24 Exit Sensor
11. Horizontal Curl Sensors	25. Vertical Curl Sensor (left)
12. Stack Position Sensor	
13. Tray HP Sensor	20. Vertical Curl Sensor (right)
14. Tray Full Sensor: 25%	27: Kelay Sensor

Drive Layout



Paper Path



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- 1. Proof Tray Path
- 2. Relay Path
- 3. Stack Tray Path

Paper Path

Overview

There are three paper paths in this machine.

1. Proof Tray Path

This is a paper path for the proof tray (top of the machine).

2. Relay Path

This is a paper path for the next peripheral.

3. Stack Tray Path

This is a paper path for the stack tray (inside the machine). The capacity of the stack tray is 5,000 sheets.



• Feed Motor [A]:

This motor drives the exit roller [1], transport rollers [2] and entrance roller [6].

• Proof Tray Exit Motor [B]:

This motor drives the proof tray exit roller [3].

• Tray Exit Motor [C]:

This motor drives the tray exit roller [7].

• Junction Gate Solenoid 2 [D]

This solenoid opens and closes the junction gate 2 [4].

• Junction Gate Solenoid 1 [E]

This solenoid opens and closes the junction gate 1 [5].

Proof Tray Exit



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Paper is fed to the proof tray by two solenoids and two motors. This is done as follows:

- 1. The junction gate solenoid 1 [A] moves the junction gate 1 [B] to open the paper path to the relay path and proof tray path, and the feed motor [C] starts to rotate when the mainframe gets a proof tray job.
- 2. The junction gate solenoid 2 [D] moves the junction gate 2 [E] to open the proof tray path after the junction gate solenoid 1 [A] has opened the paper path the relay path and proof tray path.
- The proof tray exit motor [F] starts to rotate the proof exit roller [G] after the entrance sensor [H] has detected a leading edge of paper.
- 4. The feed motor [C] and proof tray exit motor [F] stop rotating if the entrance sensor [H] does not detect paper after the proof tray exit sensor [I] has not detected paper. The proof tray exit [F] motor stops first, and then feed motor [C] stops.

The proof tray full sensor [J] detects the overflow of the proof tray stack. If it detects the overflow, the machine stops operating.

Stack Tray Exit



Paper is fed to the stack tray by one solenoid and two motors. This is done as follows:

- 1. The junction gate solenoid 1 [A] moves the junction gate 1 [B] to open the stack tray path, and the feed motor [C] starts to rotate when the mainframe gets a stack tray job.
- The tray exit motor [D] starts to rotate the tray exit roller [E] after the entrance sensor [H] has detected a leading edge of paper.
- The feed motor [C] and tray exit motor stop rotating if the entrance sensor does not detect paper after the stack tray exit sensor [E] has not detected paper. The tray exit motor [E] stops first, and then feed motor [C] stops.

The tray full sensor [H] detects the overflow of the proof tray stack. If it detects the overflow, the machine stops operating.

Relay Path



Paper is fed to the next peripheral by two solenoids and one motor. This is done as follows:

- 1. The junction gate solenoid 1 [A] moves the junction gate 1 [B] to open the paper path to the relay path and proof tray path, and the feed motor [C] starts to rotate when the mainframe gets a proof tray job.
- 2. The junction gate solenoid 2 [D] moves the junction gate 2 [E] to open the relay path after the junction gate solenoid 1 [A] has opened the paper path the relay path and proof tray path.
- 3. The feed motor [C] stops rotating if the entrance sensor [H] does not detect paper after the exit sensor [G] has not detected paper.

The relay sensor [H] detects the paper jam.

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Paper Shift and Alignment

Paper Shift



The tray exit roller motor [A] moves the tray exit roller unit [B], and then shifts a stack of paper to the front stack position [C] or rear stack position [D] in the shift mode. Even the shift mode is not selected, paper is shifted to the front stack position. The tray exit roller HP sensor [E] detects the home position of the tray exit roller unit.



This paper shift is done as follows:

- 1. The stacker moves the tray exit roller unit [A] to its home position [B] by the tray exit roller shift motor when the mainframe gets a stack tray job.
 - The home position of the tray exit roller unit is detected by the tray exit roller HP sensor [C].
- 2. The shift motor moves the tray exit roller unit [A] 12 mm to the shift stand-by position [D] from its home position [B] after the tray exit roller HP sensor [C] has detected its home position.
- 3. The tray exit roller unit is moved to the front [E] or rear [F] stack position after a sheet of paper has passed the entrance sensor.
- 4. The tray exit roller unit is returned to the shift stand-by position 0.1 second after a trailing edge of paper has passed the tray exit sensor.

Paper Alignment: Jogging

Side to Side Alignment



The jogger unit consists of the following components:

- [A] Rear jogger motor/[E] Front jogger motor
- [B] Rear jogger/ [F] Front jogger
- [C] Rear paper fence/ [G] Front paper fence
- [D] Rear jogger HP sensor/ [H] Front jogger HP sensor

The front or rear jogger motor [A] [B] moves the front or rear jogger [B] [F] via the timing belt. The home position of each jogger is detected by the front or rear jogger HP sensor [D] [H]. Each jogger has the paper fence [C] [G]which can be moved up and down.



The side to side alignment is done as follows:

[A]: Front Side Alignment

1. Jogger HP Position:

The front [C] and rear [D] joggers move to their home positions when the mainframe gets a stack tray shift job.

• A sheet of paper is shifted 10 mm to the front side by the tray exit roller unit, and then fed to the stack tray. As a result, the front paper fence is lifted up by the sheet of paper.

2. Moving to Jogging Position:

The front jogger [C] moves 5.5 mm to the rear side to jog the front side of paper. And the rear jogger [D] moves 5.5 mm to the front side for the rear paper fence to align the rear side of paper.

3. Returning to Jogger HP Position:

The front [C] and rear [D] joggers return to their home positions after the side to side alignment has been done.

[B]: Rear Side Alignment

1. Jogger HP Position:

The front [C] and rear [D] joggers move to their home positions when the mainframe gets a stack tray shift job.

• A sheet of paper is shifted 10 mm to the rear side by the tray exit roller unit, and then fed to the stack tray. As a result, the rear paper fence is lifted up by the sheet of paper.

2. Moving to Jogging Position:

The rear jogger [C] moves 5.5 mm to the front side to jog the rear side of paper. And the front jogger [D] moves 5.5 mm to the rear side for the front paper fence to align the front side of paper.

3. Returning to Jogger HP Position:

The front [C] and rear [D] joggers return to their home positions after the side to side alignment has been done.

Leading Edge Alignment



- [A]: Leading Edge Jogger Motor
- [B]: Leading Edge Jogger
- [C]: Leading Edge Jogger HP Sensor

The leading edge jogger motor [A] moves the leading edge jogger [B] via the timing belt. The home position of the leading edge jogger is detected by the leading edge jogger HP sensor [C].



The leading edge alignment is done as follows:

- 1. The leading edge jogger moves to its home position [A] when the mainframe is turned on.
- The leading edge jogger moves to the leading edge jogging position [B] when the mainframe gets a stack tray job.
 - The leading edge jogging position is decided by the following formula:

491 mm (between the tray exit roller to leading edge home position [A]) - paper length + 3 mm = the distance from the leading edge home position

- 3. The leading edge jogger moves away 5 mm [C] from the paper stack after a sheet of paper has passed the tray exit sensor [D].
- 4. The leading edge jogger moves again to the leading edge jogging position [E] to align the leading edge of the paper stack after the leading edge jogger has moved away from the paper stack.

Stack Tray Lift and Height Adjustment

Components Layout





Tray Lift and Height Adjustment

The tray lift motor moves up and down the stack tray on the tray lift via four wires. The stack tray height is precisely detected by the tray lift motor encoder sensor. And the four tray full sensors (25%/ 50%/ 75%/ Full) detect how much paper is stacked on the stack tray.

Initial Stack Tray Movement

The stack tray is moved up to its home position or stack position, and then paper is fed to the stack tray. The initial stack tray movement differs depending on the stack tray position and its condition.

• From Tray Home Position without Paper Stack

The stack tray is moved down 3 mm after the tray HP sensor has turned off. After that, the stack tray is moved up until the tray HP sensor turns on.

• From Tray Home Position or Stack Position with Paper Stack

The stack tray is moved down 40 mm. After that, the stack tray is moved up until the stack position sensor or vertical curl sensor turns on.

• From Other Position other than Tray Home Position and Stack Position

The stack tray is moved down 40 mm. After that, the stack tray is moved up until the stack position sensor or vertical curl sensor turns on.

• From Tray Unload Position (Lowest Position)

The stack tray is moved up until one of three sensors (tray HP sensor, the stack position sensor or vertical curl sensor) turns on.

Tray Movement during Paper Feeding

The tray lift motor moves down the stack tray 4 mm whenever five sheets of paper is stacked on the stack tray. However, the stack tray is moved up until the stack position sensor or vertical curl sensor detects the top of the paper stack if this tray descent has been done five times consecutively.

Paper Stack Full Detection

The stack tray full detection differs depending on paper size.

• W: 279 mm x L: 210 mm or more

The mainframe determines that the stack tray is full when **five** sheets of paper are stacked on the stack tray after the tray full sensor has turned on.

• Less than W: 279 mm x L: 210 mm

The mainframe determines that the stack tray is full when **twenty** sheets of paper are stacked on the stack tray after the tray full sensor: 50% has turned on.

Large Curl Detection



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- [A]: Vertical Curl Sensor (Left and Right)
- [B]: Horizontal Curl Sensor (Front and Rear)

If one of the curl sensors above detects paper, the mainframe determines that stack paper is not correctly stacked due to paper curl and issues the stack tray full alarm.

- 1. The vertical curl sensors transmit and receive two beams (front and rear).
 - Left Sensor Front: Reception, Rear: Transmission
 - Right Sensor Front: Transmission, Rear: Reception
- 2. The horizontal curl sensors transmit and receive two beams (upper and lower).
 - Front Sensor Right: Reception, Left: Transmission
 - Rear Sensor Right: Transmission, Left: Reception