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### **Temperature & Humidity Recommendations**

**RH** – Relative Humidity



## Introduction to Machine - 1/3





## Introduction to Machine - 2/3





## Introduction to Machine - 3/3





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<b>General Specifications - 1/3</b>		
Print Process		
Laser electrostatic transfer		
Warm-up time		
<ul> <li>Less than 30 seconds (23 C / 71.6 F)</li> </ul>		
Paper Output Capacity		
<ul> <li>Standard 125 sheets</li> </ul>		
Paper Input Capacity		
<ul> <li>Tray-1 - 250 sheets (100 postcards)</li> <li>Tray-2 (optional) - 250 sheets</li> <li>By-pass tray - 50 sheets (20 postcards, 8 envelopes)</li> </ul>		
ADF Capacity		
35 sheets		
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## **Options**

### □ Paper Feed Unit TK1080

- Paper capacity

   » 250 sheets

   Dimensions (W x D x H)
  - » 420 x 397 x 89 mm (16.6 x 18.7 x 3.5 inches)
- Weight
  - » Less than 2.4 kg (5.3 lbs.)



## **Installation (Warning)**

As a safety precaution, the power cord should be close to the machine and positioned so that power can be quickly cut by unplugging the machine.

Note: For detailed operation of SOM (Smart Organizing Monitor) see: <u>Note to Administrator</u> documentation.



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## **Loading Paper**



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## Loading Legal Size Paper



[D] - After extending tray, verify that extender's inner surface and scale are aligned.
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 Remember to return green levers to original position before printing on regular paper again.





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## **Yield Parts**



- □ There are no PM parts for this machine, but there are "yield parts".
- □ Configuration page printout includes above graph.
- □ Yield parts are as follows:
  - Paper Feed Roller
    - » Expected yield: 120 K prints
      Transfer Roller
      - » Expected yield: 120 K prints
    - Fusing Unit
       » Expected yield: 120 K prints

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## **Exterior Cover Removal**

□ For details on exterior cover removal, see following sections of service manual:

- Front Cover
- Left Cover
- Rear Cover
- Right Cover
- Top Cover
  - » When re-installing top cover, always verify that two paperweights are lifted. If not lifted to fit into paper slot, paperweights could be damaged.
  - » Make sure that these paperweights can be moved smoothly (up and down) after installing top cover. If paperweights do not move smoothly, try installing top cover again.
- Operation Panel



## Paper Feed & Exit

### □ For full details on the following, see "Paper Feed and Exit" in FSM.

- Paper Feed Roller
  - » After installing a new paper feed roller:
    - Enter "Printer Configuration" in SOM.
    - Select "SP Mode 3" tab.
    - Click "Clear Paper Feed Roller EM Counter" and then click "OK".
    - Exit SOM (Smart Organizing Monitor).
- Friction Pad
- Paper End Sensor
- By-pass Feed Roller
- By-pass Feed Roller Friction Pad
- By-pass Feed Sensor
- Paper Feed Clutch
- Relay Clutch
- Registration Clutch
- Toner End Sensor
- Paper Exit Sensor
- Relay Sensor
- Inverter Sensor
- Registration Roller and Sensor

**SOM - Smart Organizing Monitor** 

### **EM - Emergency Maintenance**



## **Paper Transfer**

### □ For full details on Paper Transfer, see service manual.

- Transfer Roller
  - » After installing a new transfer roller:
    - Enter "Printer Configuration" in SOM.
    - Select "SP Mode 3" tab.
    - Click "Clear Transfer Roller EM Counter" and then click "OK".
    - Exit SOM (Smart Organizing Monitor).

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SOM - Smart Organizing Monitor EM - Emergency Maintenance

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## **Fusing**

### □ For full details on the following Fusing details, see FSM.

- Fusing Unit
- Reinstallation

  - » After installing a new fusing unit
     Enter the "Printer Configuration" in SOM.
     Select "SP Mode 3" tab.
     Click "Clear Fusing Unit EM Counter" and then click "OK".
     Exit the SOM (Smart Organizing Monitor).
- Thermostat
- Thermistor
- Fusing Lamp
  - » When reinstall the fusing lamp
    - Flat terminal side of lamp must be placed on right side of fusing unit (fusing cable side).
- Hot Roller
- Pressure Roller
- Hot Roller Stripper Pawls



## **Motors**

- □ For more details on the following, see "Motors" in the service manual.
  - Main Motor
  - Duplex Motor (For M013)

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# **Electrical Components**

# □ For more details on the following, see "Electrical Components" in the service manual.

- Layout of PC Boards
  - » ECB (Engine Controller Board)
  - » EEPROM
  - » Controller Board
- PSU
- Charge Terminal Case
- Cooling Fan
- Quenching Lamp

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# **SOM - Smart Organizing Monitor**

For more details on the following, see "Smart Organizing Monitor" in the service manual and also "Note to Administrator" documentation.

- Overview
- Printer Driver Installation (USB Connection)
- Entering the Printer Configuration
- Printer Configuration Menu List
  - » Paper Input
  - » Maintenance
  - » System
  - » Network 1
  - » Network 2
  - » Network 3
  - » Printer
  - » SP Mode 1
  - » SP Mode 2
  - » SP Mode 3

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	Cover Removal & Part Replacement			
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For more details, see "General Precautions on Disassembly" in the Service Manual.



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# LD Safety Mechanisms

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Power Supply Unit	+24V Rear Cover SW Front Cover SW	Engine Controller Board		
Regulator	+5VLD		LD Drive Board +5VLD LD Driver	
Laser Safety	Switch			
There are safety switches on front and rear covers which stop laser while cover is open.				
If user opens	one of these	covers, the +5VLD	power to laser diodes is stopped.	
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M012/M013 Service Training AIO (All In One print cartridge)	
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# **Toner Overflow Prevention - 1/2**

### Main Motor Rotation Count

- Time to replace AIO cartridge can also be determined by length of time main motor has been rotating.
- When toner end is detected, "Replace Print Cartridge" light illuminates on display.

### **D** Toner Overflow Prevention

- With main motor rotation count feature, machine can be set to stop printing after print total exceeds a certain set value.
- If print count exceeds this value, then "Replace Print Cartridge" light illuminates on display, and remains on until new AIO cartridge is installed.
- This feature is a safety measure to prevent the used toner tank from becoming full (there is no toner overflow detection mechanism).

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- **OPC Organic Photo-Conductor (drum)**
- **PSU Power Supply Unit**





- Periodic cleaning of roller is required to prevent toner from transferring to roller surface.
- □ Roller is cleaned at following times:
  - After initial power on
  - After clearing of a copy jam
  - At job end (if at least 10 sheets have been printed since last cleaning)
- □ Roller surface is kept clean by PSU supplying...
  - negative cleaning current (about -4uA) to transfer roller, causing negatively charged toner on roller to move back to drum.
  - positive cleaning current (+5uA) to roller, causing any positively charged toner to migrate back to drum.

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# Image Fusing & Paper Exit Overview













#### **Overheat Protection**

- □ If hot roller temperature becomes greater than 225C, CPU cuts off power to fusing lamp.
- □ If thermistor overheat protection fails, there is a thermostat in series with the common ground line of fusing lamp.
- □ If temperature of thermostat becomes greater than 210C, the thermostat opens, removing power from fusing lamp.
- □ At this time, machine stops operation.

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### Paper Path (Duplex)





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Slide 85 D Electrical component in an optional paper tray.



#### Rinmei-P1 / M012/M013 / P1a/P1b / SP 3400N/SP 3410DN









- **□** There are no official PM parts in this machine.
- □ There are three "yield parts", but given the ACV (Average Copy Volume) for this machine, these "yield parts" are expected to outlast the life of the machine.
- **Vield Parts** 
  - Pick-up Roller (120 K)
  - Transfer Roller (120 K)
  - Fusing Unit (120 K)
- Amount of yield part usage can be monitored via the following methods (see following slides).

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### Web Image Monitor Status Page - 1/2

- Display shown on following page is on the Status Page.
- □ Note in particular:
  - Print Cartridge & Replaceable Parts Information"
- □ To reset yield counters:
  - Enter "Printer Configuration" in SOM – (SOM - Smart Organizing Monitor)
  - Select "SP Mode 3" tab.
  - Click:
    - » "Clear Fusing Unit EM Counter"
      - (EM Emergency Maintenance)
    - » "Clear Transfer Roller EM Counter" or
    - » "Clear Paper Feed Roller EM Counter"
  - Click "OK".
  - Exit SOM.

### Web Image Monitor Status Page - 2/2

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eports Print					
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	Contact :				
	Host Name :3410DN-E0	3052			
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Slide 92 D When servicing machine, always note status information.

### **Replacing Print (Toner) Cartridge**



- □ When removing Print Cartridge [B], keep horizontal.
- □ After taking Print Cartridge out of box [C], place on flat surface and remove protective sheet [D].
- Shake the Print Cartridge from side to side five or six times (keeping horizontal).

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#### **Cleaning Friction Pad & Paper Feed Roller**



Note: After wiping the roller with a soft damp cloth [C], always wipe with a dry cloth to remove any moisture.

### Note to Service Personnel

- □ Yield Parts are rated to last for 120 K, which is expected to be longer than this machine's rated lifespan of five years.
- □ For customers who are very heavy users, it may be necessary to change Yield Parts during the life of the machine.
  - When installing Yield Parts, the machine must be reset.
  - Reset procedure is not a user function and must be performed by a trained serviceperson.
  - See FSM (Field Service Manual) for reset procedures.
- □ After performing any maintenance procedure, always print out a Configuration Report, and check Yield Parts.

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#### Image Adjustment - 1/2

- This adjustment can be done by both technicians and users.
- □ For more details on the following, see "Image Adjustment" in the service manual.
  - Registration Adjustment
    - » User Adjustment
      - Paper registration can also be adjusted with SOM "Printer Configuration". (For details, see "Software Guide".)
    - » Service Adjustment
      - See following slide for Service Adjustment details.

### Image Adjustment - 2/2



**SOM – Smart Organizing Monitor** 

- 1) Feed Direction

### □ Click "Up" or "Down" to set registration

- Increase value to shift print area in plus
- Decrease to shift in minus direction.

□ Adjust margins of test page so that they



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### Firmware Updating - 2/2

# □ For full details on Firmware Updating, see service manual for the following:

- Checking the Machine Firmware Version
- Updating the Controller Firmware
   » Procedure
- Updating the Engine Firmware » Procedure
- Updating the Boot Loader Firmware



### **Paper Jams**

Various types of paper jams and their causes are detailed in the service manual. Some causes include:

- Use of a non-recommended paper type
- End fence set incorrectly
- Paper lift mechanism not functioning correctly
- Defective paper feed motor
- □ Go over the causes and suggested actions.
- □ When clearing jams near the fusing unit, use caution to avoid possible burns.

#### Rinmei-P1 / M012/M013 / P1a/P1b / SP 3400N/SP 3410DN



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### M012/M013 Service Training

**Energy Saving** 

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#### **Promote Use of Energy Saving Features**

#### **Energy Saver Mode**

• Proper use of energy saver modes saves energy and is environmentally friendly.

#### Duplex Settings

• Use of Duplex settings reduces amount of paper used, which results in less energy consumption for paper production.





#### **Energy Saver Modes**

Customers should use energy saver modes properly, to save energy and protect the environment.

The area shaded grey in this diagram represents the amount of energy that is saved when the timers are at the default settings. If the timers are changed, then the energy saved will be different. For example, if the timers are all set to 240 min., the grey area will disappear, and no energy is saved before 240 min. expires.

**Timer Settings** 

#### **Energy Saver Modes - 2/3**

#### □ There are four operating modes for this machine:

- Operating mode
- Ready mode
- Power Save-1 mode
- Power Save-2 mode

#### □ Timer Settings - User can set these timers:

- Energy Saver Mode1 (30 sec.)
  » Setting is for [On] or [Off].
  Energy Saver Mode2 (1 to 240 min.)
  » Settings are for [On] or [Off] and timer is adjustable (default: 1 min.)

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### **Energy Saver Modes - 3/3**

#### □ How is energy saved?

- Low Energy Mode-1 » Less than 70 W
- Low Energy Mode-2
  - » Less than 5 W
  - » Fusing lamps: Off

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### Paper Saving - 1/2



## Duplexing and combine functions reduce amount of paper used.

• Less energy overall is used for paper production, which helps the environment.

#### **Duplex:**

• Reduce paper volume by 50%!



#### **Combine mode:**

• Reduce paper volume by 50%!
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## Paper Saving - 2/2



### Duplex + Combine:

□ Using both features together can further reduce paper volume by 3/4!

#### **I** To check paper consumption, view total counter and duplex counter.

- For one duplex page, total counter goes up by 2.
  For a duplex job of a three-page original, total counter goes up by 3.

### Duplex counter counts pages with images on both sides.

- For one duplex page, duplex counter goes up by 1.
  For a duplex job of a three-page original, duplex counter will only increase by 1, even though two sheets are used.

#### Recommendation

 Please explain these features to customers so they can reduce their paper usage.

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