# LCIT RT4040 Machine Code: D3D6

# **Field Service Manual**

May, 2016

# Safety, Conventions, Trademarks

#### Conventions

#### **Common Terms**

This is a list of symbols and abbreviations used in this manual.

Symbol, Abbreviation	Meaning
1	Blue screw
4	Bushing
Ŵ	C-ring
S.	Connector
<b>B</b>	E-ring
43 <sup>3</sup>	Flexible film cable
<b>§</b>	Harness clamp
▼	Hook
9°	Screw
- CUID-	Spring
$\bigcirc$	Timing belt
JG	Junction Gate
LEF	Long Edge Feed
SEF	Short Edge Feed
TE	Trailing Edge of paper





SEF (Short Edge Feed)

LEF (Long Edge Feed) safe001

#### 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.

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

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• 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**

#### **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

#### 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

### **WARNING**

- 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 Tools**

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- 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

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- 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**

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- 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).

#### **Ozone Filters**

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- Always replace ozone filters as soon as their service life expires (as described in the service manual).
- An excessive amount of ozone can build up around machines that use ozone filters if they are not replaced at the prescribed time. Excessive ozone could cause personnel working around the machine to feel unwell.

#### Power Plug and Power Cord

### **WARNING**

- Before servicing 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**

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- 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.

#### Points to Confirm with Operators

At the end of installation or a service call, instruct the user about use of the machine. Emphasize the following points.

- Show operators how to remove jammed paper and troubleshoot other minor problems by following the procedures described in the operating instructions.
- Point out the parts inside the machine that they should never touch or attempt to remove.
- Confirm that operators know how to store and dispose of consumables.
- Make sure that all operators have access to an operating instruction manual for the machine.
- Confirm that operators have read and understand all the safety instructions described in the operating instructions.

- Demonstrate how to turn off the power and disconnect the power plug (by pulling the plug, not the cord) if any of the following events occur: 1) something has spilled into the product, 2) service or repair of the product is necessary, 3) the product cover has been damaged.
- Caution operators about removing paper fasteners around the machine. They should never allow paper clips, staples, or any other small metallic objects to fall into the machine.

#### Safety Instructions for this Machine

- 1. The installation must be done by trained service technicians.
- 2. This machine weighs 92 kg. (202.9 lb.). At least four persons are required to remove the machine from its pallet and position it for installation.
- 3. To prevent fire hazards never use flammable solvents around the machine.
- 4. Never place any object on the machine.
- 5. If anything falls into the machine, turn off the main power switch on the right side of the machine, then disconnect the power cord from the power source.
- 6. Locate the machine on a sturdy flat surface where it will not be exposed to excessive vibration.
- 7. To avoid fire hazard, confirm that the ventilation ports are not blocked, so air can flow freely.
- 8. Gas generated by the molten glue can irritate the eyes, throat, and nose. The machine should always be used in a well ventilated room.
- 9. To avoid the dangers of fire and electrical shock, make sure that the machine is never exposed to:
  - Excessive high temperatures and/or humidity
  - Dust
  - Water
  - Direct sunlight
  - Open flame
  - Corrosive gases

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# 1. Replacement and Adjustment

# Covers



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- 1. Remove in this order:
  - [A] Transport cover (@<sup>2</sup>x1)
  - [B] Transport cover hinge (@ x1)
  - [C] Rear cover (@x4)
  - [D] Top cover (@ x1)
  - [E] Right cover (@ x4)
  - [F] Front cover (@°x3)

# Rollers, Solenoid

### Pick-up, Feed, and Separation Rollers

- 1. Open the transport cover [A] .
- 2. Remove bracket cover [B].



- 3. Remove:
  - [A] Pick-up roller
  - [B] Feed roller.
  - [C] Separation roller



### Pick-p Solenoid

- 1. Remove the rear cover (@<sup>2</sup>x 4). page 11
- 2. Open the transport cover
- 3. Remove bracket cover.
- 4. Remove pick-up solenoid [A].



# Sensors, Switches

#### Paper End Sensor, Upper Cover Switches

- 1. Open the top cover.
- 2. Remove the right cover. (Srx2) page 11
- 3. Remove paper end sensor [A].



4. Remove upper cover switches 1 and 2 [A].



#### Paper Stack Sensor

- 1. Disconnect the LCIT from the machine.
- 2. Remove:
  - [A] Sensor cover
  - [B] Paper stack sensor



### Tray Switch LED

- 1. Separate the LCIT and the main machine.
- 2. Open top cover [A].
- 3. Remove right cover [B].



@<sup>m</sup> x4

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4. Disconnect the front cover at the top.



5. Disconnect the front cover on the right [A].

6. Disconnect the front cover from the tabs on the left [B].



7. The tray switch LED is below the switch.



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8. Disconnect the switch.



9. Remove the switch.



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- 10. Disconnect LED harness [A].
- 11. Disconnect LED bracket [B].



12. Remove the bracket with LED attached, and then lay it on a flat, clean surface.



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13. Separate the LED and harness from the bracket.



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Reinstallation

- 1. Assemble the new LED and bracket so the harness [A] is positioned as shown.
- 2. Set the switch over the LED with the arrow [B] pointing forward.



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# Motor

# Tray Motor

- 1. Remove the rear cover (🞯 x4). page 11
- 2. Remove tray motor [A]



# Adjustment

Paper Size Adjustment

The side fences [A] and [B] can be adjusted for different paper sizes:

- A4 LEF
- B5 LEF
- LT LEF



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1. Open the top cover of the LCIT.



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2. Remove the right panel of the LCIT.



@ x4

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3. If the LCIT is connected to the main machine, remove the lock screw.



4. Press the release button on the front of the LCIT [A], and then pull the LCIT slightly away from the side of the main machine, but do not disconnect the LCIT I/F cable.



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- 5. If the LCIT is disconnected, connect the I/F cable to the main machine [A], and then turn the machine on.
- 6. You must disconnect front fence [1] and rear fence [2], but these fences cannot be removed with tray plate [B] in the up position.



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- 7. Confirm that the main machine is on, and that the LCIT is connected to the main machine.
- 8. To lower the tray plate, cover photosensor [1] with your left hand, and then press and hold down button [2].



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9. Keep the sensor covered and the button depressed until the tray plate reaches bottom and the motor switches off. You can now remove the fences.



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10. Unfasten and remove rear fence [A].



11. Unfasten and remove front fence [A].

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1



- 12. Set the bottom edge of each side fence into the slot for the paper size that you want you load into the LCIT
- 13. Set the notches at the top of each side fence at the name of the paper size.
- 14. Re-fasten the at the top, and then re-assemble the LCIT.
- 15. Turn the machine on.
- 16. Open **SP5959-005** (Paper Type Tray 4), and then select the paper size you have selected with the side fences.

1. Replacement and Adjustment

# Overview

### Specifications

Paper capacity	4,000 sheets
Paper Sizes	A4 LEF, B5 LEF, 8.5" x 11" LEF *1
Paper Weight	52 to 128 g/m <sup>2</sup> (14 to 34 lb)
Pick-up and Feed	FRR (Feed and Reverse Roller)
Power Consumption	Less than 50 W (Max.)
Power Supply	DC24 V, 5V (powered by the main unit)
Rated Voltage of Output Connector	Max. DC 24 V
Dimensions (W x D x H)	314 x 458 x 659 mm (12.4" x 18.1" x 25.9")
Weight	20.0 kg (44 lb.)

\* 1: In platen mode, APS (Auto Paper Select) with the original length and original width sensors are not used.

# LCIT Main Components



No.	Part	No.	Part
1	Separation Roller	10	Paper Height Sensor 2
2	Transport Roller	11	Paper Tray
3	Feed Sensor	12	Paper Height Sensor 3
4	Feed Roller	13	Paper Tray Motor
5	Lift Sensor	14	Low Limit Sensor
6	Pick-up Roller	15	Tray Drive Belt
7	Paper End Sensor	16	Feed Motor

No.	Part	No.	Part
8	Paper Near End Sensor	17	Stack Sensor
9	Paper Height Sensor 1		

- Pick-up, Separation, Feed. Non-contact, maintenance free FRR system.
- Tray Lift. Tray lift motor and timing belt raise and lower the paper tray.
- **Paper Size Detection**. The side fences cannot be adjusted by customers. The paper size must be entered with SP5959 005.
- Paper Height Detection. A feeler and four photo-interrupters are used.
- Paper End Detection. A reflective sensor on the upper stay detects paper end.

#### LCIT Drive Layout



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No.	Part
1	Pick-up Roller
2	Separation Roller
3	Transport Rollers
4	Feed Roller
5	Feed Motor
6	Tray Motor
7	Tray Lift Shaft
8	Tray Drive Belt

# Mechanisms

#### Paper Feed and Separation

A standard FRR system is used. It consists of the pick-up, feed, and separation rollers.

#### **Starting Paper Feed**

The feed motor [A] drives the transport rollers [B]. The separation roller [C], which is free to rotate in the direction indicated by the arrow, remains at rest.

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#### **Feed and Separation**

The feed motor [A] switches on, then the pick-up solenoid [B] switches on and transfers drive to the paper feed roller [C] and pick-up roller [D]. The rotating pick-up roller lowers and feeds the first sheet when it contacts the top of the stack. The separation roller [E], in contact with the feed roller, only allows one sheet out of the tray.



As soon as the paper feed sensor (not shown) detects the leading edge of the paper, it switches off the pick-up solenoid which raises the pick-up roller. The feed roller feeds the sheet to the registration roller. This process is repeated for each sheet.

#### **Paper Lift**

- Tray motor [A] rotates gear [B] and connected shaft [C].
- This rotation drives tray belts [D] that raise and lower the paper tray [E].
- After paper is set in the LCIT and the upper cover is closed, if the paper height sensor [F] is not activated, the tray motor lowers the tray and stops.
- When the paper height sensor activates, the tray motor lifts the tray.



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After several sheets have been fed, the paper level lowers, the actuator [A] activates the lift sensor [B], and switches on the motor again.

2



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The motor raises stack until the actuator de-activates the lift sensor.

This cycle repeats to maintain the correct height of the stack until the end of the job.

Pressing the tray down button [A] reverses the rotation of the tray motor [B] and lowers the tray [C].

The tray lowers until the stack sensor [D] detects the top of the stack and stops the tray motor.

- This mechanism lowers the tray by 5 cm, which gives the user enough space to add 500 sheets of paper.
- If the down switch is then pressed again, the bottom plate moves down once again by 5 cm. This allows the customer to replenish paper in convenient amounts and at the same position.

A lower limit sensor [E] (triggered by an actuator on the bottom of the tray) is also provided to stop the tray motor if the stack sensor should fail.



#### Summary

The tray raises when:

- The main power switch is turned on
- When the lift sensor switches on during copying
- The top cover is closed and the lift sensor switches on

The tray lowers when:

- The tray down button is pressed.
- The paper end sensor signals that there is no paper in the tray.

#### **Paper Height Detection**

As paper is consumed from the top of the stack [A], the paper tray rises and the actuator [B] attached to the tray passes through paper height sensor 3 [C], paper height sensor 2 [D], and paper height sensor 1 [E] until the actuator reaches the paper near end sensor [F].



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The operation panel displays a message for each paper height until the actuator reaches the near-end sensor, then a message warns the user that the tray is nearly empty. The table summarizes the relation between sensor detection and the number of sheets remaining in the stack.

Sheet Remaining	Bars *1	Sensors			
		Near-end	P.Height 1	P.Height 2	P.Height 3
75	1	•			
1500	2	0	•		
2500	3	0	0	•	
3500	4	0	0	0	•

<sup>\*1</sup>:The number of vertical bars in the paper height display on the operation panel.

Actuator blocking the sensor gap.
Sensor gap is open

#### **Paper End Detection**

The paper end sensor [A] monitors the light reflected by each sheet on top of the stack. When the last sheet feeds, the cutout [B] is exposed, and the paper end sensor receives no reflected light from below because there is no paper and this signals paper end.



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