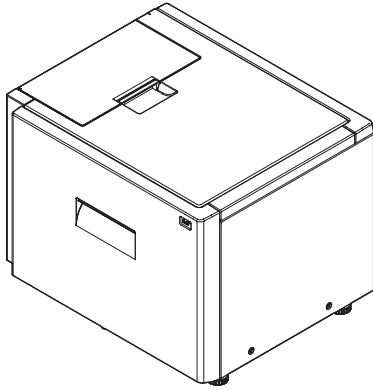


SERVICE MANUAL



DIGITAL MULTIFUNCTIONAL SYSTEM OPTION LARGE CAPACITY TRAY

MODEL MX-LCX3N

CONTENTS

[1] PRODUCT OUTLINE	1-1
[2] SPECIFICATIONS	2-1
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES	4-1
[5] OPERATIONAL DESCRIPTION	5-1
[6] DISASSEMBLY AND ASSEMBLY	6-1
[7] MAINTENANCE	7-1
[8] ADJUSTMENTS	8-1
[9] SIMULATION	9-1
[10] SELF DIAG MESSAGE AND TROUBLE CODE	10-1
[11] ELECTRICAL SECTION	11-1

Parts marked with "△" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

CONTENTS

[1] PRODUCT OUTLINE	1-1	[8] ADJUSTMENTS	
[2] SPECIFICATIONS	2-1	1. List	8-1
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES		2. Details	8-1
1. Motor, clutch, solenoid	4-1	[9] SIMULATION	
2. PWB, sensor, switch, heater	4-2	1. List	9-1
[5] OPERATIONAL DESCRIPTION		[10] SELF DIAG MESSAGE AND TROUBLE CODE	
1. Lift operation	5-1	1. Self diag	10-1
2. Paper feed operation	5-2	2. Trouble code list	10-2
3. Paper empty detection	5-3	3. Trouble code details	10-2
[6] DISASSEMBLY AND ASSEMBLY		[11] ELECTRICAL SECTION	
1. Maintenance parts replacement procedures	6-1	1. Wiring diagram	11-1
2. Each unit removal	6-1	2. Block diagram	11-3
3. Major parts removal	6-3		
[7] MAINTENANCE			
1. Maintenance system table	7-1		

[1] PRODUCT OUTLINE

This model is a large capacity paper feed tray installed to the main unit.
It stores 3,000 sheets, eliminating troublesome paper supply.

[2] SPECIFICATIONS

Model		Large capacity tray	
Transport reference		Center reference	
Heat reserving heater		Domestic: Heater kit support Overseas: Service parts support	
Paper capacity	Domestic	Normal paper(64g/m ² ,17 lbs bond)	3500 sheets
	Overseas	Normal paper(80g/m ² ,21 lbs bond)	3000 sheets
Paper size/type/weight		Refer to Table 1	
Paper size detection		Not provided (Manually setting from the control panel of the main unit)	
Paper type setting		Refer to Table 2	
Paper size change system	Changeover by user		Yes (Changeover by manager is allowed)
	Changeover by service man (Adjustment of guide and entry of size)		No
Factory setting of paper size	Domestic		A3
	Overseas, Inch series		11x17
	Overseas, AB series		A3
Remaining paper detection		Paper empty and 6 steps (100% ,83.3% ,66.7% ,50% ,33.3% ,16.7% ,Paper empty)	
Tray lift time	Up		max. 30 sec.
	Down		max. 15sec.
Troubleshooting of paper jam		Can be corrected without separating the unit.	
Reliability		MCBJ:Conforms to the main unit MCBF:Conforms to the main unit	
Life		Conforms to the main unit	
Power source		Supplied from the main unit	
Power consumption		Normal operation:50.4W Lift up:40.8W	
Dimensions(WxDxH)		670x570x525mm, 26 3/8 x 22 7/16 x 20 21/32 inch	
Occupying area(WxD)		670x570mm, 26 3/8 x 22 7/16 inch * The rear cabin motor restrictor (10mm) is not included.	
Weight		Approx. 50kg, 110.1 lbs	
Installation/Maintenance		Implemented by service man	
Maintenance parts		Paper feed roller	
Optional detection		Automatic detection	
Bundled item		Parts for installation	

Table 1:Paper size, type, weight

		AB Series	Inch
Paper size	A3W	Yes	Yes
	A3	Yes	Yes
	B4	Yes	Yes
	A4	Yes	Yes
	A4R	Yes	Yes
	B5	Yes	Yes
	B5R	No	No
	A5R	No	No
	12x18	Yes	Yes
	11x17	Yes	Yes
	8.5x14	Yes	Yes
	8.5x13	Yes	Yes
	8.5x11	Yes	Yes
	8.5x11R	Yes	Yes
	7.25x10.5R	No	No
	5.5x8.5R	No	No
	8K	*	No
	16K	*	No
	16KR	No	No
	Postcard	No	No
Envelope	No	No	
Special	No	No	
Kind/weight of applicable paper	Thin paper	55-59g/m ² 15-16- lbs bond	No
	Normal paper	60-105g/m ² 16-28 lbs bond	Yes
	Cardboard 1 (including gloss paper)	106-209g/m ² 28+-56- lbs bond	Yes
	Cardboard 2	210-256g/m ² 56-68 lbs bond	No
	Envelope	75-90g/m ² 20-24 lbs bond	No
	OHP paper		No
	Label paper		No
Tab paper		No	

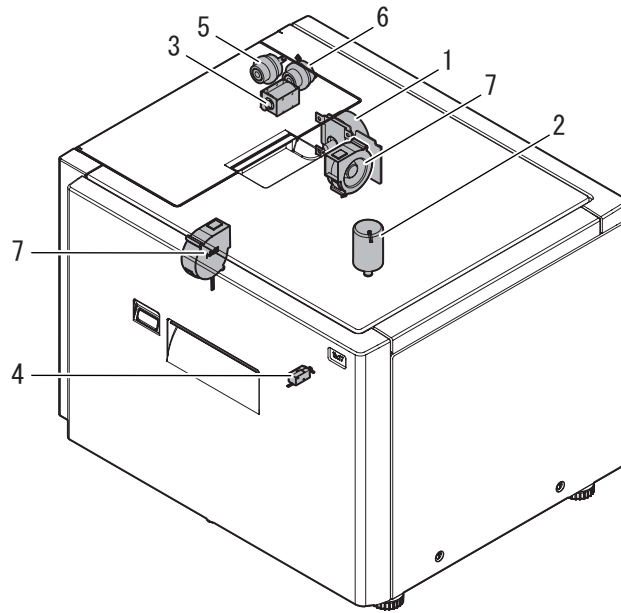
* : Available for products for China only.

Table2:Paper type setting

Paper type	Normal paper	Yes
	Printed paper	Yes
	Recycled paper	Yes
	Letter head	Yes
	Perforated paper	Yes
	Color paper	Yes
	Cardboard 1	Yes
	Cardboard 2	No
	Thin paper	No
	Label paper	No
	OHP	No
	Tab paper	No
	Envelope	No
	Use type 1 to 7	Yes

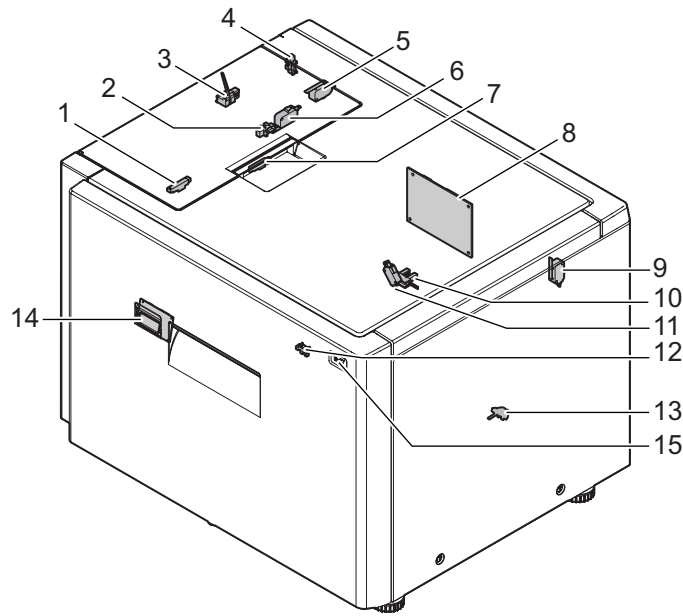
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Motor, clutch, solenoid



No.	Parts					
	Code	Signal name	Name	Type	Function/Operation	Active condition
1	LPFM	LPFM	Transport motor	Brushless motor	Drives the paper feed, and the paper transport section.	CN-G 5pin → Motor rotation clock 4pin → Sync signal: Normal HIGH 3pin → Enable signal: LOW when rotating
2	LLM	LLM	Lift motor	Brush motor	Lifts or lowers the paper feed table.	CN-B Lifting: 10pin "24V", 15pin "L" Lowering: 10pin "L", 15pin "24V"
3	LPFS	LPFS	Paper feed solenoid		Presses the paper pickup roller onto paper.	CN-E 8pin ON: "L" OFF: "24V"
4	LTLS	LTLS	Tray lock solenoid		Controls ON/OFF of the tray lock.	CN-D Lock: "L" ("24V" after 0.5sec) Release: "L" ("24V" after 0.5sec)
5	LTRC	LTRC	Transport clutch		Controls ON/OFF of the transport roller.	CN-F 15pin ON: "L" OFF: "24V"
6	LPFC	LPFC	Paper feed clutch		Controls ON/OFF of the paper feed roller.	CN-F 11pin ON: "L" OFF: "24V"
7	LFAN	LFAN	Separation assist fan	Brushless motor	Assists feeding of paper.	CN-D 15, 16pin ON: "L" OFF: "5V"

2. PWB, sensor, switch, heater



No.	Parts					
	Code	Signal name	Name	Type	Function/Operation	Active condition
1	LPUD	LPUD	LCC paper front surface sensor		Detects paper front surface position	CN-C 8pin Paper detected: "L" Paper not detected: "H"
2	LUD	LUD	Upper limit sensor		Detects the paper upper limit position.	CN-E 5pin Upper limit: "H" Other than Upper limit: "L"
3	LPFD	LPFD	Transport sensor		Detects paper transport.	CN-E 11pin Paper detected: "L" Paper not detected: "H"
4	LTOD	LTOD	The main unit connection sensor		Detects connection to the main unit.	CN-F 19pin Connected: "L" Not connected: "H"
5	LDSW	LDSW	Upper open/close switch		Detects open/close of the upper door.	CN-F 4pin 6pin Open: "L" Close: "24V"
6	LLSW	LLSW	Upper limit switch		Protects the paper feed unit from breakage due to lifting the tray too much.	CN-F 7pin Normal: "24V" Detection: "L"
7	LPED	LPED	Paper presence/empty sensor		Detects paper presence/empty on the paper tray.	CN-E 2pin Paper present: "L" Paper empty: "H"
8	A3-LCC PWB	—	A3-LCC PWB unit		Controls and drives the LCC.	
9	LCSW	LCSW	Cassette detection switch		The tray insertion is detected.	CN-B 7pin Cassette insertion: "24V" Cassette pulling out: "L"
10	LRE	LRE	Lift motor encoder		The lift motor rotation is detected.	CN-C 4pin Pulse
11	LWRSW	LWRSW	LCC reverse-winding detection switch		Detects lift motor reverse-winding	CN-B 14pin Normal: "24V" Detection: "L"
12	LTLD	LTLD	Tray lock sensor		Detects the tray lock	CN-C 7pin Lock: "H" Release: "L"
13	LDD	LDD	Lower limit sensor		The lower limit of the tray is detected.	CN-C 3pin Lower limit: "H" Other than Lower limit: "L"
14	DOWN SW PWB	—	Lowering SW PWB unit		Shifts the tray to the paper supply position.	
15	LTLLED	LTLLED	Tray LED		The tray state is displayed with LED.	

[5] OPERATIONAL DESCRIPTION

1. Lift operation

A. Lifting by insertion of the tray

When insertion of the tray is detected, the tray is locked by the tray lock solenoid so that the tray cannot be pulled out.

When tray lock is settled by turning ON the tray lock sensor (LTLD), the lift motor is turned ON to lift the tray.

When the tray is lifted, the tray LED blinks and stops at the paper feed position (upper limit) by turning ON the upper limit sensor (LUD).

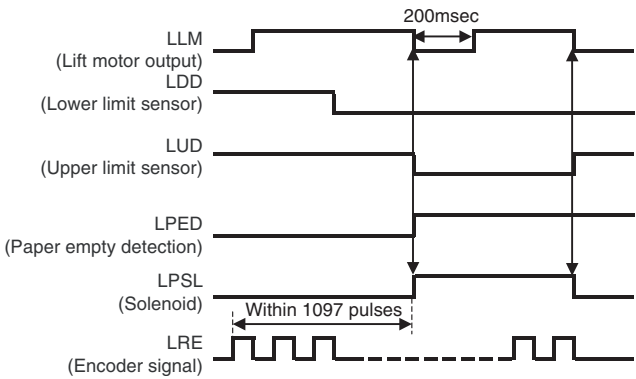
When the tray stops at the paper feed position (upper limit), the tray LED turns on.

When the paper empty sensor (LPED) turns ON within 1097 pulses of the encoder signal from start of the tray lifting, the lift motor is turned OFF to stop the tray, and the paper feed solenoid (LPFS) is turned ON to lower the pick roller.

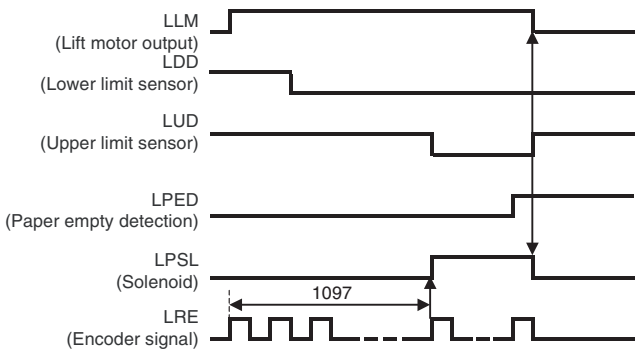
After that, the lift motor is turned ON again to lift the tray and stop it at the upper limit sensor (LUD) ON position.

When the paper empty sensor (LPED) does not turn ON within 1097 pulses, the paper feed solenoid (LPFS) is turned ON with the lift motor ON to lower the pick roller. The lift motor is stopped at the upper limit sensor (LUD) ON position and the paper feed solenoid is turned OFF.

Lifting (When LPED turns ON within 1097 pulses during lifting)



Lifting (When LPED does not turn ON within 1097 pulses during lifting)



B. Lowering operation by paper empty detection or pressing the tray SW

When the paper empty sensor (LPED) turns OFF with the tray at the paper feed position (upper limit) or when the tray SW (LTLSW) is pressed, the tray is lowered by 542 pulses of the encoder signal and stopped at the paper supply position.

When the lower limit sensor (LDD) turns ON before lowering the tray by 542 pulses of the encoder signal, the lift motor is turned OFF to stop the tray.

When the tray is moving down, the tray LED blinks. When the tray is stopped at the paper supply position, the tray LED turns OFF.

When the tray is stopped at the paper supply position, the tray lock solenoid releases the lock so that the tray can be pulled out.

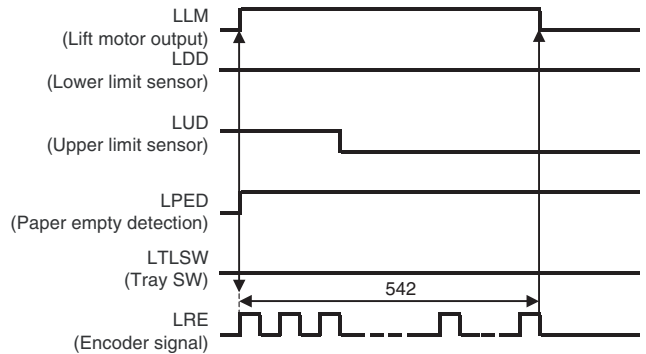
When the tray is lowered with the paper empty sensor (LPED) OFF, the tray remains at the paper supply position and the tray lock is released.

When the tray is lowered by pressing the tray SW (LTLSW), if the tray is not pulled out from the paper supply position for 90sec, the tray lock solenoid locks the tray. When the tray is locked securely, the lift motor is turned ON to lift the tray.

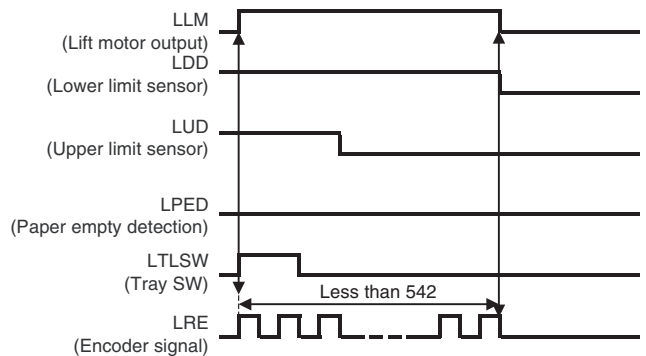
When the tray is lifting, the tray LED blinks. When the upper limit sensor (LUD) is turned ON, the tray stops at the paper feed position (upper limit).

When the tray stop at the paper feed position (upper limit), the tray LED turns ON.

Lowering operation (when paper empty is detected)



Lowering operation (when tray SW is pressed)



C. Lowering operation by paper supply

If the tray is pulled out when it is at the paper supply position, the tray lock solenoid keeps the lock open.

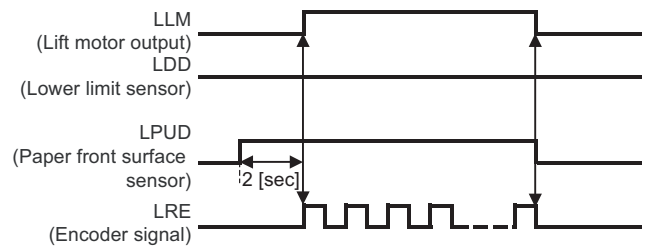
When the tray is pulled out, the tray LED turns OFF.

When the paper front surface sensor (LPUD) is turned ON for 2sec while the tray is pulled out, the lift motor is turned ON to lower the tray.

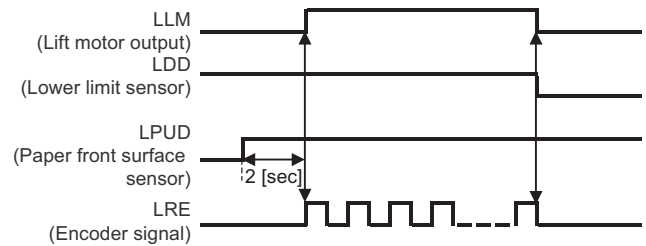
When the paper front surface sensor (LPUD) is turned OFF while the tray is lowered, the lift motor is turned OFF to stop the tray.

When the lower limit sensor (LDD) is turned ON while the tray is lowered, the lift motor is turned OFF to stop the tray regardless of the state of the paper front surface sensor (LPUD).

Lowering operation (when paper is supplied or when the paper front surface sensor is turned ON)



Lowering operation (when paper is supplied or when the lower limit sensor is turned ON)



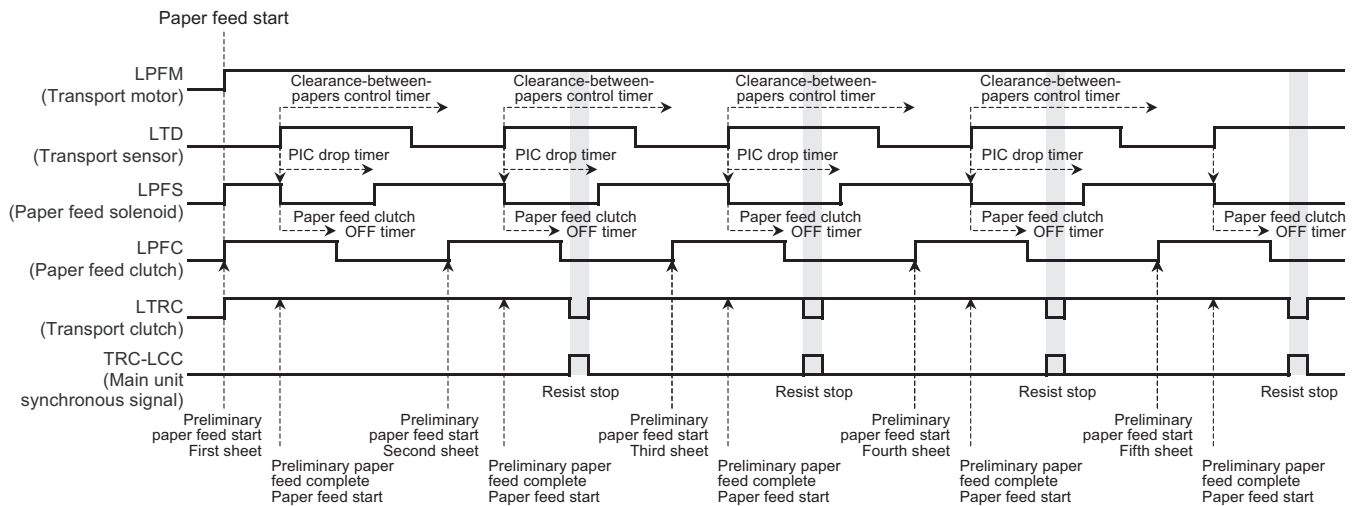
2. Paper feed operation

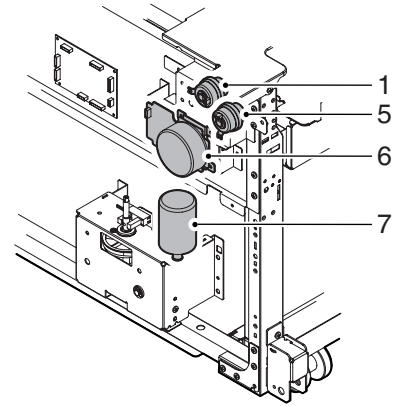
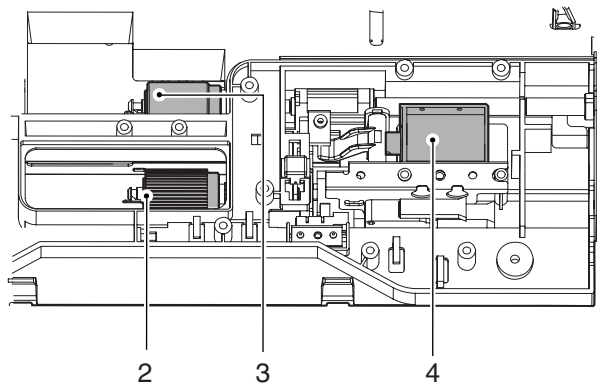
When the tray is stationary at the paper feed position (upper limit sensor: LUD ON position) and there is paper on the tray, paper feed operation can be performed.

Paper feed operation is performed by the transport motor (LPFM), the transport clutch (LTRC), the paper feed clutch (LPFC), and the paper feed solenoid (LPFS) at the following timing.

When the transport clutch (LTRC) is turned ON with the transport motor (LPFM) ON (rotating), the transport roller rotates. When the paper feed clutch (LPFC) is turned on under this state, the paper feed roller and the take-up roller rotate. When the paper feed solenoid (LPFS) is turned ON, the take-up roller is pushed down to press paper.

Paper feed time chart





1	Paper feed roller clutch
2	Take-up roller
3	Paper feed roller
4	Paper feed solenoid
5	Transport clutch
6	Transport motor
7	Lift-up motor

3. Paper empty detection

When the tray lifts and stops at the paper feed position and during paper feed operation, paper presence/empty is detected by the paper presence/empty sensor (LPED).

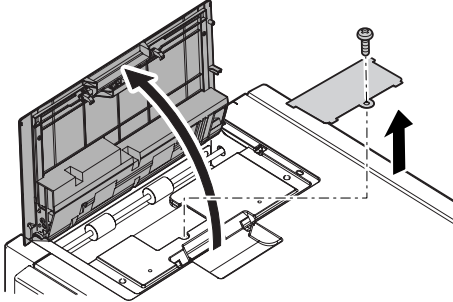
When paper empty is detected in the tray during paper feeding, paper feeding is stopped.

[6] DISASSEMBLY AND ASSEMBLY

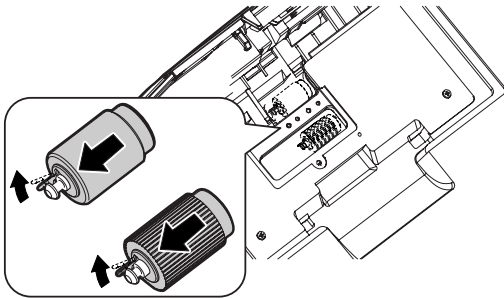
1. Maintenance parts replacement procedures

A. Paper feed roller

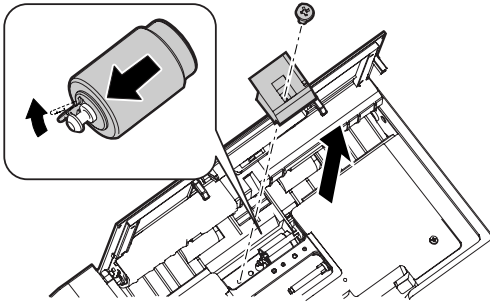
- 1) Pull the lever, and open the upper cover.
- 2) Remove the screw, and remove the sheet.



- 3) Remove the pawl, and remove the pickup roller and the paper feed roller.



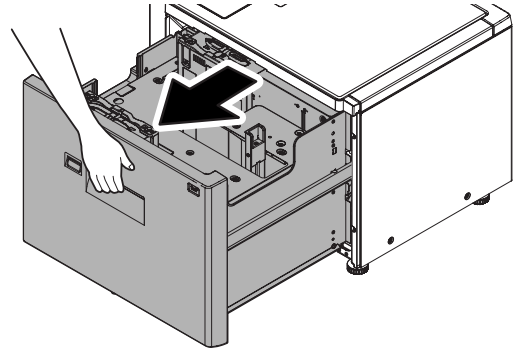
- 4) Loosen the screw, and remove the paper guide block.
- 5) Remove the pawl, and remove the reverse roller.



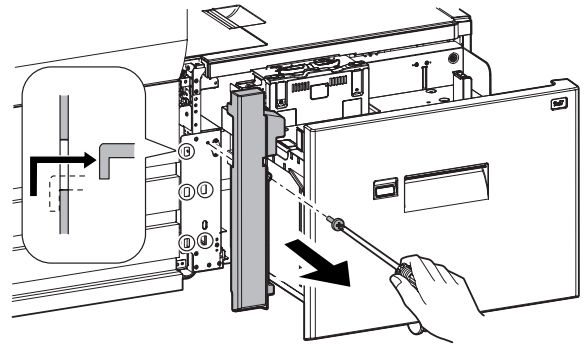
2. Each unit removal

A. Paper feed unit

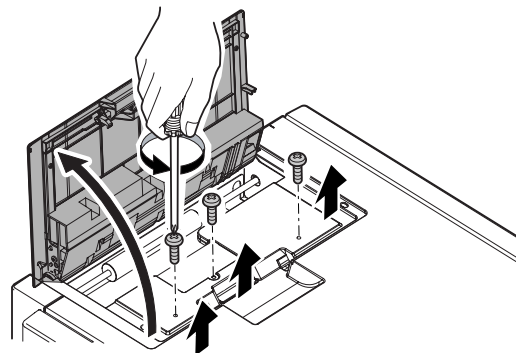
- 1) Pull out the tray.



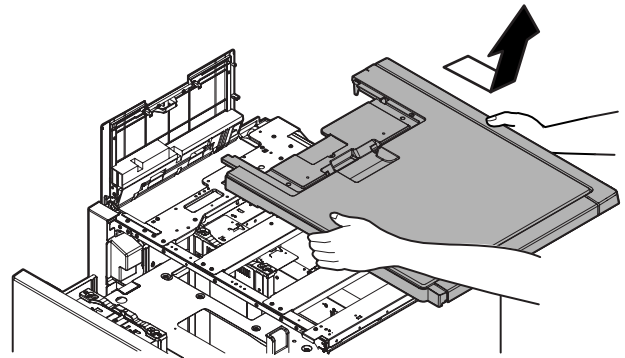
- 2) Remove the screw, and remove the left front cabinet.



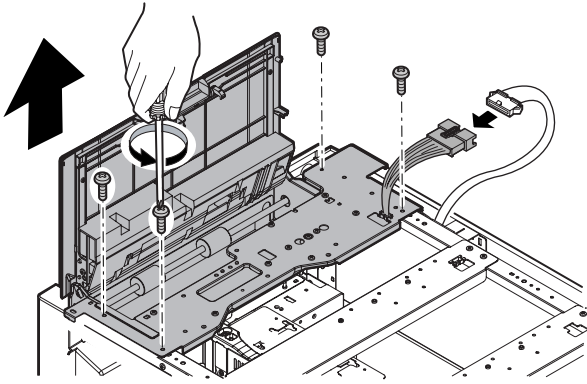
- 3) Open the upper cover, and remove the screws.



- 4) Remove the upper cabinet.

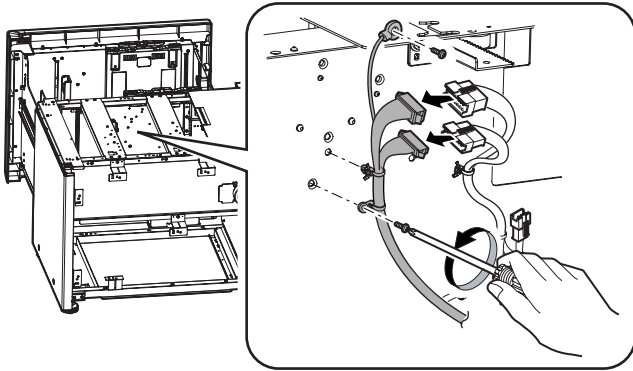


- 5) Disconnect the connectors.
- 6) Remove the screws, and remove the paper feed unit.

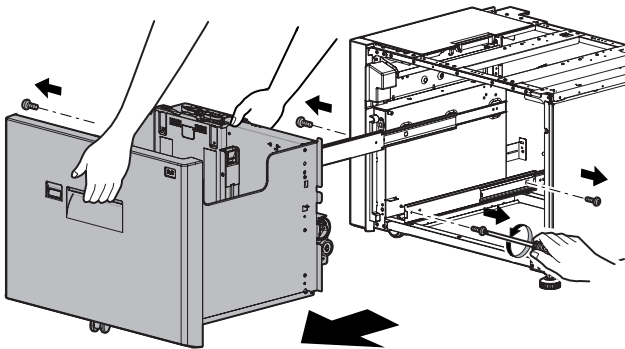


B. Paper feed tray

- 1) Pull out the tray.
- 2) Remove the upper cabinet. (Refer to "A. Paper feed unit")
- 3) Remove the left front cabinet. (Refer to "A. Paper feed unit")
- 4) Remove the harness.

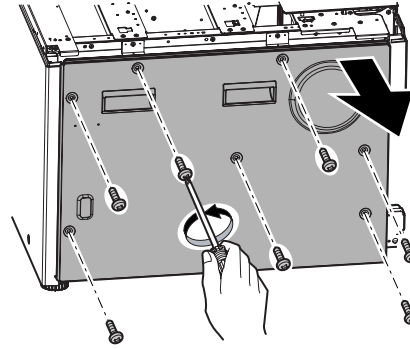


- 5) Remove the screws from the left and right rail sections, and remove the tray unit from the rail.

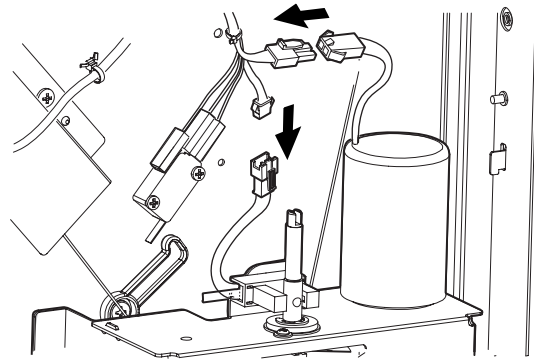


C. Lift drive unit

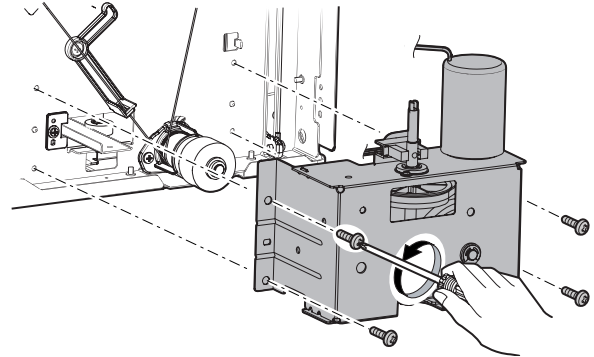
- 1) Check that there is no paper, and lower the paper feed table to the lower limit with the main unit simulation mode.
- 2) Remove the screws, and remove the rear cabinet.



- 3) Remove the connectors.



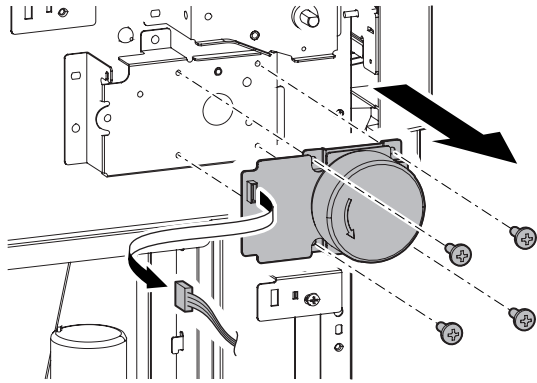
- 4) Remove the screws, and remove the lift drive unit.



3. Major parts removal

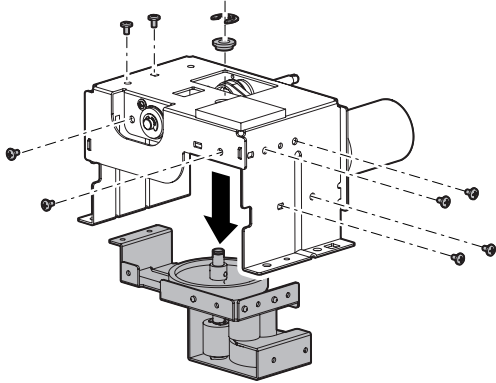
A. Motor (Main)

- 1) Remove the rear cabinet. (Refer to "2. Each unit removal")
- 2) Disconnect the connector.
- 3) Remove the screws, and remove the motor.

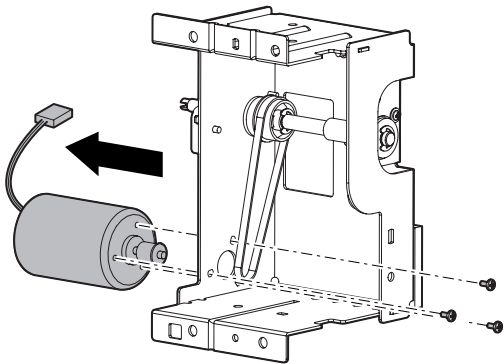


B. Lift motor

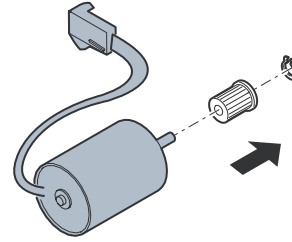
- 1) Remove the lift drive unit. (Refer to "2. Each unit removal")
- 2) Remove the screws, the E-ring, the bearing, and remove the gear unit.



- 3) Remove the screws, and remove the lift motor.



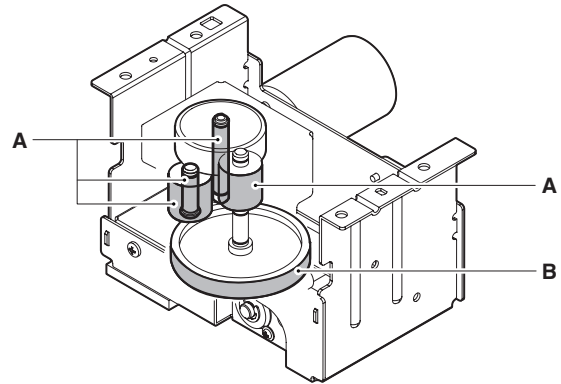
- 4) Remove the ring, and remove the pulley.



* Applying grease at maintenance

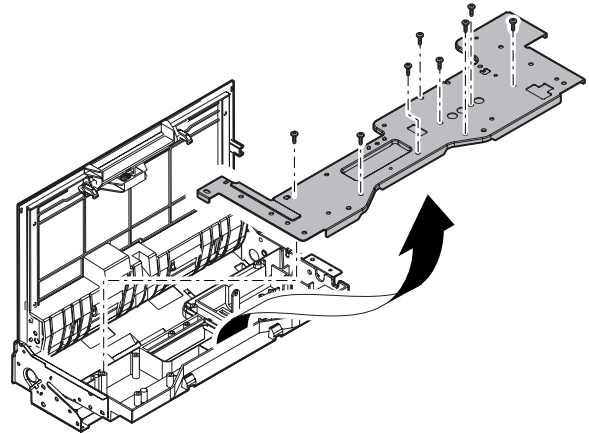
A: Apply MOLYKOTE (6LS06286000)

B: Apply FLOIL (6LS06283000)

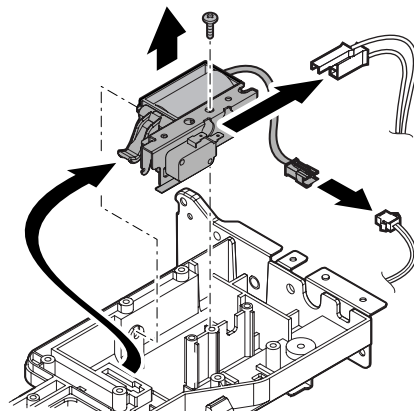


C. Paper feed solenoid

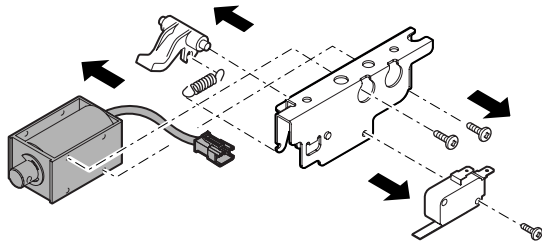
- 1) Remove the paper feed unit. (Refer to "2. Each unit removal")
- 2) Remove the cover.



- 3) Remove the screw, and remove the unit. Disconnect the connector.

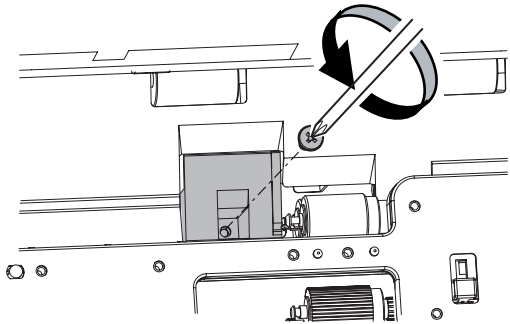


- 4) Remove the screws, and remove the solenoid.

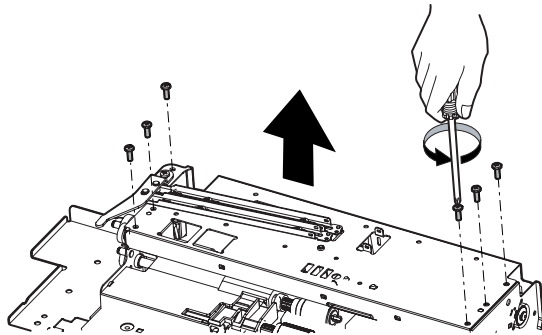


D. Torque limiter

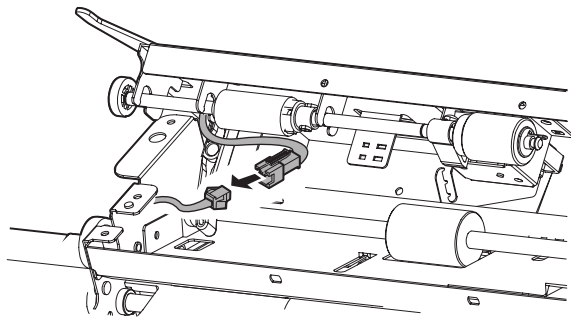
- 1) Remove the paper feed unit. (Refer to "2. Each unit removal")
- 2) Remove the screw, and remove the paper guide block.



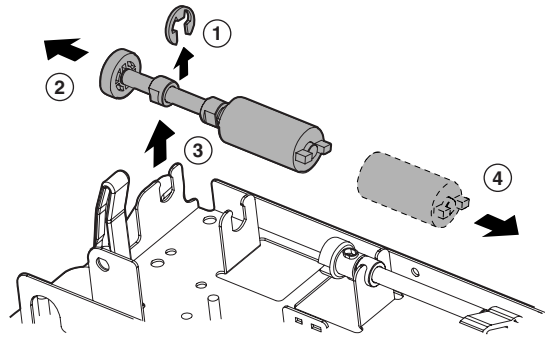
- 3) Remove the screws, and remove the rear cover.



- 4) Disconnect the connector.

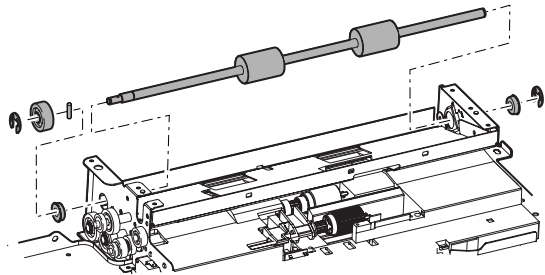


- 5) Remove the E-ring, and remove the torque limiter.



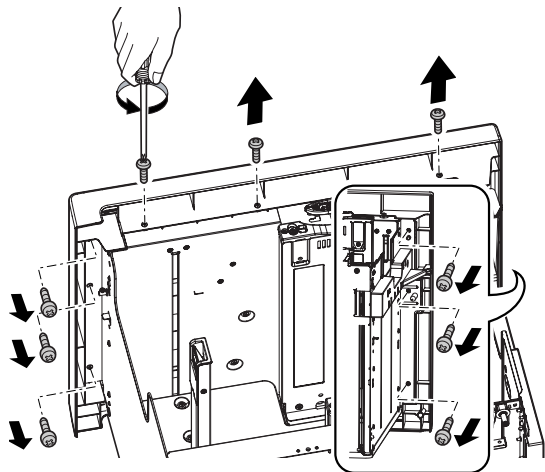
E. Transport roller

- 1) Remove the paper feed unit. (Refer to "2. Each unit removal")
- 2) Loosen the screws, and remove the paper guide block.
- 3) Remove the rear cover, and disconnect the connector. (Refer to "D. Torque limiter")
- 4) Remove the screw and the E-ring, and remove the parts. Remove the transport roller.

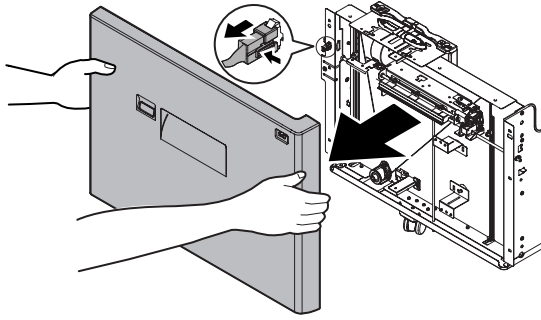


F. Handling solenoid

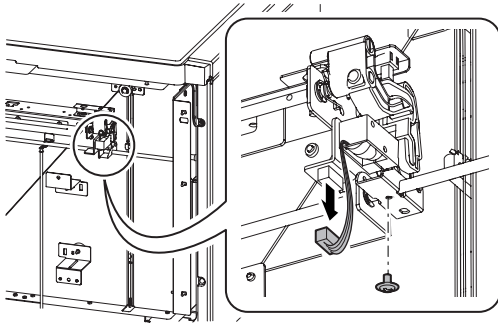
- 1) Check that there is no paper, and lower the paper feed table to the lower limit with the main unit simulation mode.
- 2) Pull out the tray.
- 3) Remove the screws.



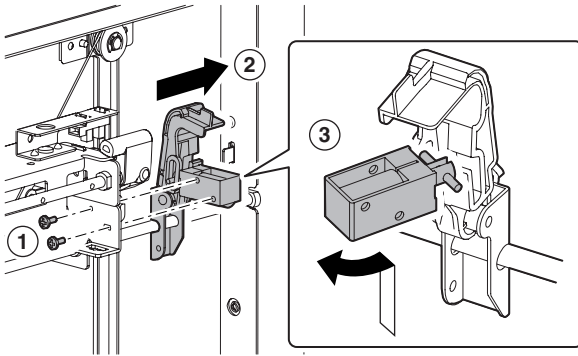
- 4) Remove the front cabinet, and disconnect the connector.



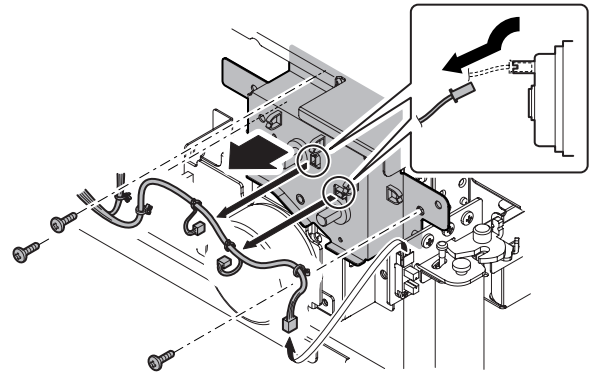
- 5) Remove the connector and the screw.



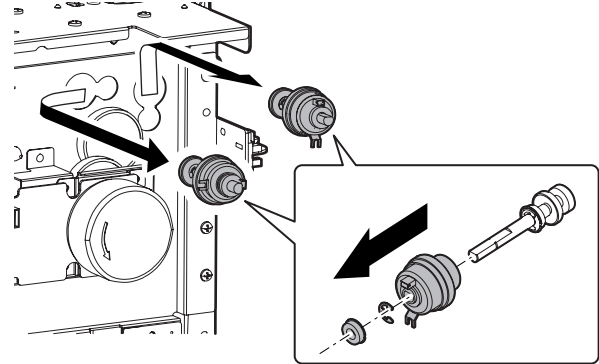
- 6) Remove the screws, and remove the solenoid.



- 4) Disconnect the connector, and remove the harness. Remove the drive frame.

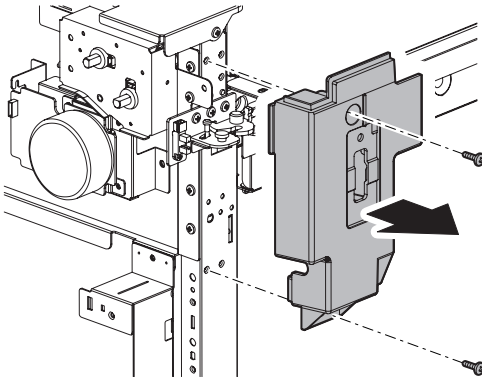


- 5) Remove the clutch unit. Remove the E-ring, and remove the clutch.



G. Clutch

- 1) Remove the upper cabinet.
- 2) Remove the rear cabinet.
- 3) Remove the left rear cabinet.



[7] MAINTENANCE

1. Maintenance system table

× : Checking (clean, replace or adjust as required) ○ : Cleaning ▲ : Replace △ : Adjust ☆ : Lubricate □ : Position shift

No.	Part name	When calling	Main unit maintenance cycle	Remarks
1	Pick-up roller/each paper feed roller	×	○	As a rough guide, these rollers should be replaced when the LCC paper feed counter reaches a value of 100K (Sim22-9) or when one year has elapsed since the start of use.
2	Torque limiter	×	×	As a rough guide, the torque limiter should be replaced when the LCC paper feed counter reaches a value of 800K (Sim22-9).
3	Each transport rollers	×	○	
4	Each transport paper guides	○	○	
5	Each gears	×	×	
6	Each belts		×	
7	Each sensors	×	×	

[8] ADJUSTMENTS

Each adjustment item in the adjustment item list is indicated with its JOB number. Perform the adjustment procedures in the sequence of Job numbers from the smallest to the greatest.

However, there is no need to perform all the adjustment items. Perform only the necessary adjustments according to the need.

Unnecessary adjustments can be omitted. Even in this case, however, the sequence from the smallest to the greatest JOB number must be observed.

If the above precaution should be neglected, the adjustment would not complete normally or an error may occur.

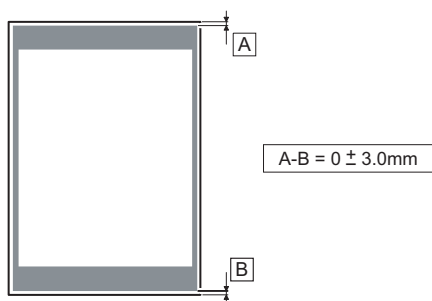
1. List

Job No.	Adjustment item list			Simulation to be used
ADJ 1	Print off-center adjustment			50-10
ADJ 2	Resist amount adjustment	ADJ 2A	Change in the resist amount adjustment/deflection amount correction value	51-02
		ADJ 2B	Adjustment of the print lead edge adjustment	50-05

2. Details

ADJ 1 Print off-center adjustment

- Execute SIM.50-10. The displays shown at the right will appear.
- The print off-center adjustment value can be set for each tray.
- Press the [\downarrow] key on the touch panel to select "H:50:LCC".
- Then, enter your desired adjustment value with the [10] key.
(Default: 50 Adjustment range: from 1 to 99)
 - * If the adjustment value is decreased by 1, the main scanning print position is shifted to the front side by 0.1mm.
 - * If the adjustment value is increased by 1, the main scanning print position is shifted to the rear side by 0.1mm.
- When the [EXECUTE] button is pressed, the [EXECUTE] button is highlighted, currently set value is saved into the EEPROM and the RAM, and printing for the adjustment pattern image is started. After printing is finished, the [EXECUTE] button returns to the normal display status.
- Check the adjustment pattern image position.
Measure the dimensions of the void area in the adjustment pattern front and rear frame directions, and ensure that they satisfy the conditions shown below.

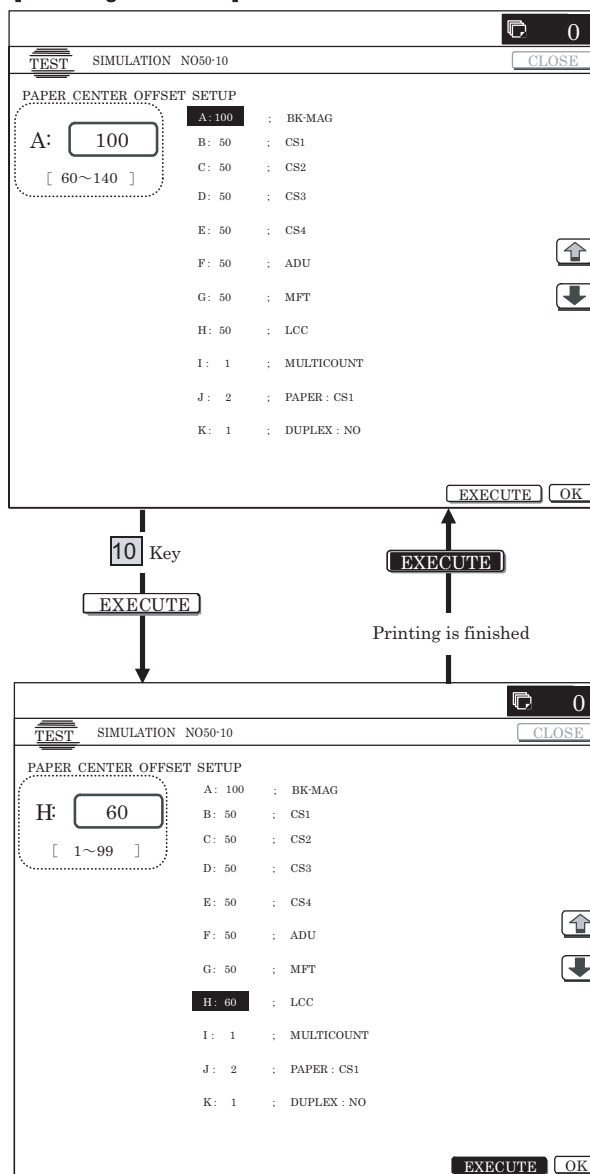


If condition of $A - B = 0 \pm 3.0\text{mm}$ is satisfied, no adjustment is necessary.

If it does not satisfy the condition above, execute the procedures shown below.

- Change the adjustment value. Repeat the steps from 4 thru 6 until the condition described in the step 6) is satisfied.
- After the adjustment is finished, escape from the simulation mode with the CA key.

[Switching of screen]

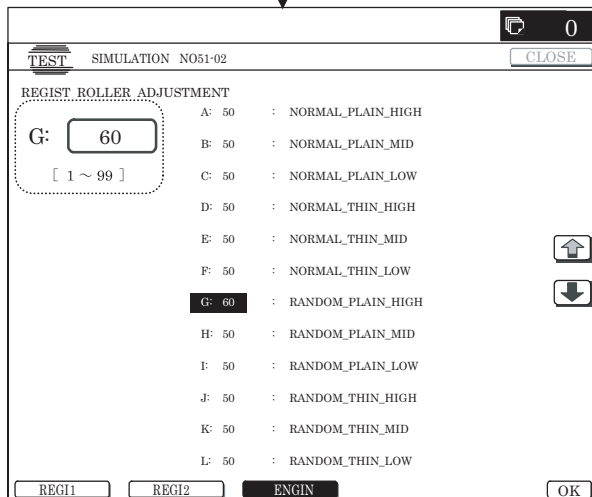
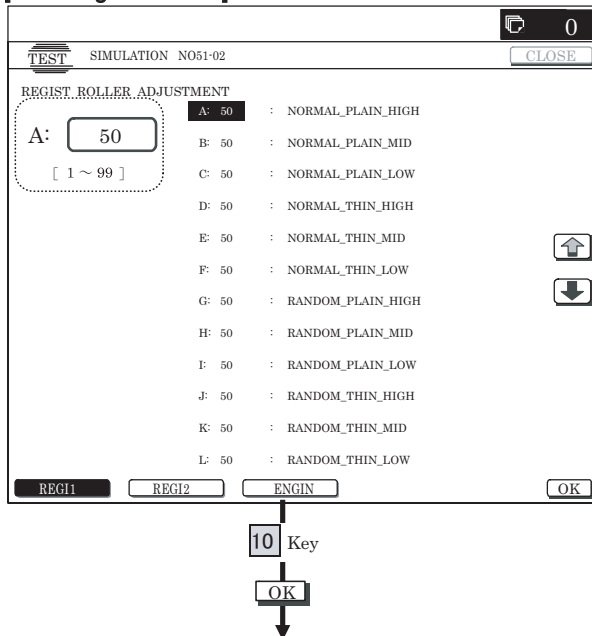


ADJ 2 Resist amount adjustment

2-A Changing resist amount adjustment/ deflection amount correction value

- 1) Execute SIM.51-2 by the key operation of the machine. Then, the displays shown below appear.
- 2) Select the [ENGIN] button.
- 3) Press the [\downarrow] key on the touch panel to select "G:50:LCC".
- 4) Then, enter your desired adjustment value with the [10] key.
(Default: 50 Adjustment range: from 1 to 99)
* As the adjustment value is increased, the deflection amount is also increased. As the adjustment value is decreased, the deflection amount is also decreased.
(If the adjustment value is changed by "1", the stop timing is changed by 0.1mm (1.0msec).)
- 5) After the adjustment value is entered, press the [OK] key on the touch panel to save the set value.
- 6) After the adjustment is finished, escape from the simulation mode with the CA key.

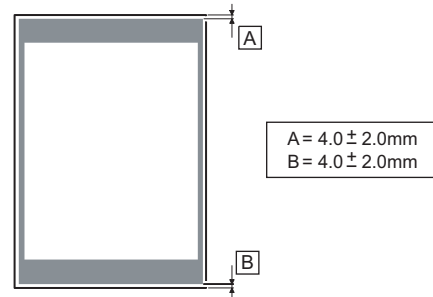
[Switching of screen]



2-B Print lead edge adjustment

- 1) Execute SIM.50-5 by the key operation of the machine. Then, the displays shown on the next page appear.
- 2) Press the [\downarrow] key on the touch panel to select "E:PAPER".
- 3) Then, enter the adjustment value 6 with the [10] key, and press the [OK] button.
(Adjustment value 6: LCC)
- 4) When the [EXECUTE] button is pressed, the [EXECUTE] button is highlighted, and printing for adjustment pattern image is started with the currently set value. After printing is finished, the [EXECUTE] button returns to the normal display status.
- 5) Check the adjustment pattern image position.

Measure the dimensions of the void area in the adjustment pattern right and left frame directions, and ensure that they satisfy the conditions shown below.



If condition of $A=4.0\pm 2.0\text{mm}$, $B=4.0\pm 2.0\text{mm}$ is satisfied, no adjustment is necessary.

If it does not satisfy the condition above, execute the procedures shown below.

- 6) Change the adjustment values of the adjustment items A(DEN-C) and B(DEN-B).
* As the adjustment value of the item A(DEN-C) is decreased by 1, the print start position is moved to the lead edge side of paper against the paper feed direction by 0.1mm.
* As the adjustment value of the item B(DEN-B) is decreased by 1, the print range is increased to the trailing edge side of paper against the paper feed direction by 0.1mm.
- 7) Repeat the steps from 4 thru 6 until the condition shown in the step 5) is satisfied.
- 8) After the adjustment is finished, escape from the simulation mode with the CA key.

[Switching of screen]

0

TEST SIMULATION NO50-05 CLOSE

LEAD EDGE ADJUSTMENT VALUE(PRINTER)

A: [1 ~ 99]

A: 35 : DEN-C
B: 35 : DEN-B
C: 35 : FRONT/REAR
D: 1 : MULTI COUNT
E: 2 : PAPER : CS1
F: 1 : DUPLEX : NO

EXECUTE OK

EXECUTE

EXECUTE

Printing is finished

0

TEST SIMULATION NO50-05 CLOSE

LEAD EDGE ADJUSTMENT VALUE(PRINTER)

E: [1 ~ 6]

A: 35 : DEN-C
B: 35 : DEN-B
C: 35 : FRONT/REAR
D: 1 : MULTI COUNT
E: 6 : PAPER : CS1
F: 1 : DUPLEX : NO

EXECUTE OK

[9] SIMULATION

1. List

Code		Function (purpose)	Purpose	Section
Main	Sub			
4	2	Used to check the operations of the sensors and detectors in the large capacity tray (LCC) and the control circuit.	Operation test/Check	Large capacity tray (LCC)
	3	Used to check the operations of the loads in the large capacity tray (LCC) and the control circuit.	Operation test/Check	Large capacity tray (LCC)
	5	Used to check the operations of the clutch (LTRC) in the LCC and the monitor.	Operation test/Check	Large capacity tray (LCC)
15	-	Used to cancel the self-diag "U6-09 (large capacity paper feed tray)" trouble.	Clear/cancel (Trouble etc.)	LCC

[10] SELF DIAG MESSAGE AND TROUBLE CODE

1. Self diag

A. General

When an error occurs in the machine or when the life of a consumable part is nearly expired or when the life is expired, the machine detects and displays it on the display section or notifies to the user or the serviceman by remote email diagnostics. This allows the user and the serviceman to take the suitable action. In case of a failure, this feature notifies the occurrence of a failure and stops the machine to minimize the damage.

B. Function and purpose

- 1) Securing safety. (The machine is stopped on detection of a failure.)
- 2) The damage to the machine is minimized. (The machine is stopped on detection of trouble.)
- 3) By displaying the trouble content, the trouble position can be quickly identified. (This allows to perform an accurate repair, improving the repair efficiency.)
- 4) Preliminary warning of running out of consumable parts allows to arrange for new parts in advance. (This avoids stopping of the machine due to running out the a consumable part.)

C. Self diag message kinds

The self diag messages are classified as shown in the table below.

Class 1	User	Warning of troubles which can be recovered by the user. (Paper jam, consumable part life expiration, etc.)
	Serviceman	Warning of troubles which can be recovered only by a serviceman. (Motor trouble, maintenance, etc.)
	Other	—
Class 2	Warning	Warning to the user, not a machine trouble (Preliminary warning of life expiration of a consumable part, etc.)
	Trouble	Warning of a machine trouble. The machine is stopped.
	Other	—

D. Self diag operation

(1) Self diag operation and related work flow

The machine always monitors its own state.

When the machine recognizes a trouble, it stops the operation and displays the trouble message.

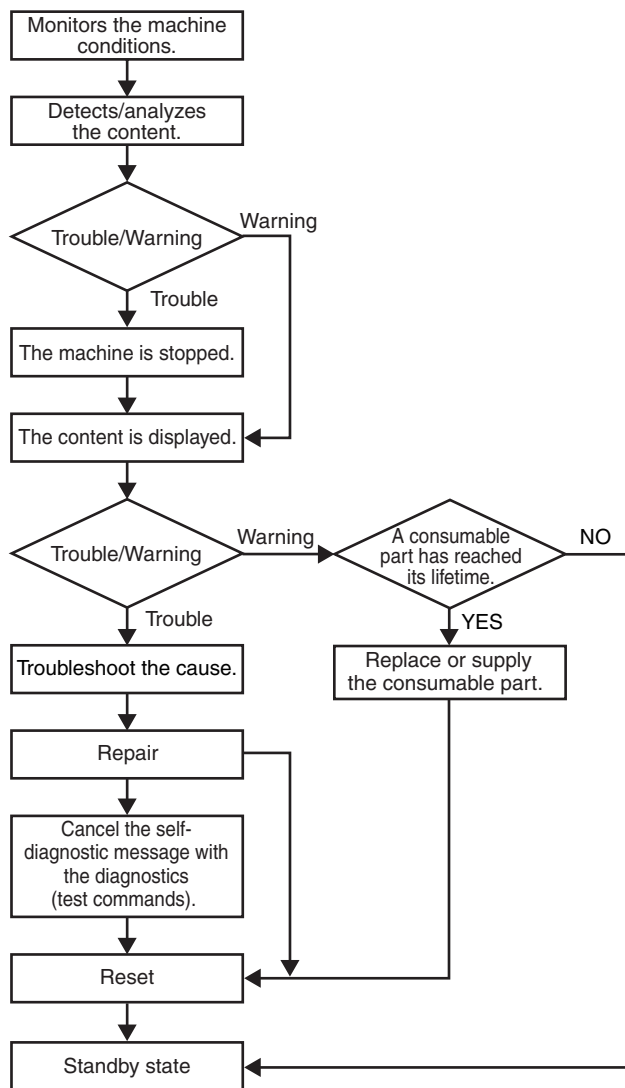
A warning message is displayed when a consumable part life is nearly expired or is expired.

When a warning message is displayed, the machine may or may not be stopped.

The trouble messages and the warning messages are displayed by the LCD.

Some error messages are automatically cleared when the trouble is repaired. Some other error must be cleared by a simulation.

Some warning messages of consumable parts are automatically cleared when the trouble is replaced. Some other warning messages must be cleared by a simulation.



2. Trouble code list

MAIN CODE	SUB CODE	Title (Content)	Section	Operation mode	Countermeasure (Remedy)	Note
U6	09	Lift motor trouble	LCC	When the tray is working	Check connection.	
	20	Communication trouble	LCC	LCC communication	Turn OFF/ON the power.	
	21	Transport motor trouble	LCC	Paper feed	Check connection.	
	22	24V trouble	LCC	Power ON	Check connection.	
	23	Tray descending trouble	LCC	When the tray is working	Check connection.	
	24	Tray lock trouble	LCC	When the tray is working	Check connection.	
	51	LCC incompatibility trouble	LCC	Power ON	Check connection.	

3. Trouble code details

U6-09 LCC lift motor trouble

Trouble content		<ul style="list-style-type: none"> The encoder input value is not changed in 0.2sec (1st time)/0.5sec (2nd time and later) after rotation of the motor. The motor is rotated for 48sec or more.
Section		PCU
Case 1	Cause	Sensor trouble, LCC control PWB trouble, gear breakage, lift motor trouble
	Check and Remedy	Use SIM4-2 and 4-3 to check the operation of the sensor and the lift motor. Use SIM15 to cancel the trouble.

U6-20 LCC communication trouble

Trouble content		LCC communication error. Communication line test error after turning ON the power or canceling the exclusive simulation. LCC and machine model codes discrepancy error
Section		PCU
Case 1	Cause	Connector and harness connection trouble or disconnection, LCC control PWB trouble, control (PCU) PWB trouble, malfunction due to electrical noises
	Check and Remedy	Turn OFF/ON the power to cancel the trouble. Check the connector and the harness of the communication line.

U6-21 LCC transport motor trouble

Trouble content		After passing 1 sec from turning ON the motor, the lock state of the motor lock signal is detected continuously for 1 sec.
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, an overcurrent to the motor, LCC control PWB trouble
	Check and Remedy	Use SIM4-3 to check the operation of the transport motor.

U6-22 LCC 24V power abnormality

Trouble content		DC24V power is not supplied to LCC.
Section		PCU
Case 1	Cause	Connector and harness connection trouble or disconnection, LCC control PWB trouble, power unit trouble
	Check and Remedy	Check the connector and the harness of the power line. Check that the power unit and the LCC control PWB is of 24V.

U6-23 LCC tray descending trouble (reverse winding detection)

Trouble content		Reverse winding of the LCC tray wire is detected.
Section		PCU
Case 1	Cause	Reverse winding of the wire
	Check and Remedy	Check the wire.
Case 2	Cause	Connector and harness connection trouble
	Check and Remedy	Check connection of the connector and the harness.
Case 3	Cause	Reverse winding detection SW-ON, reverse winding detection SW trouble, LCC control PWB trouble
	Check and Remedy	Replace the reverse winding SW and the LCC control PWB.

U6-24 LCC tray lock detection trouble

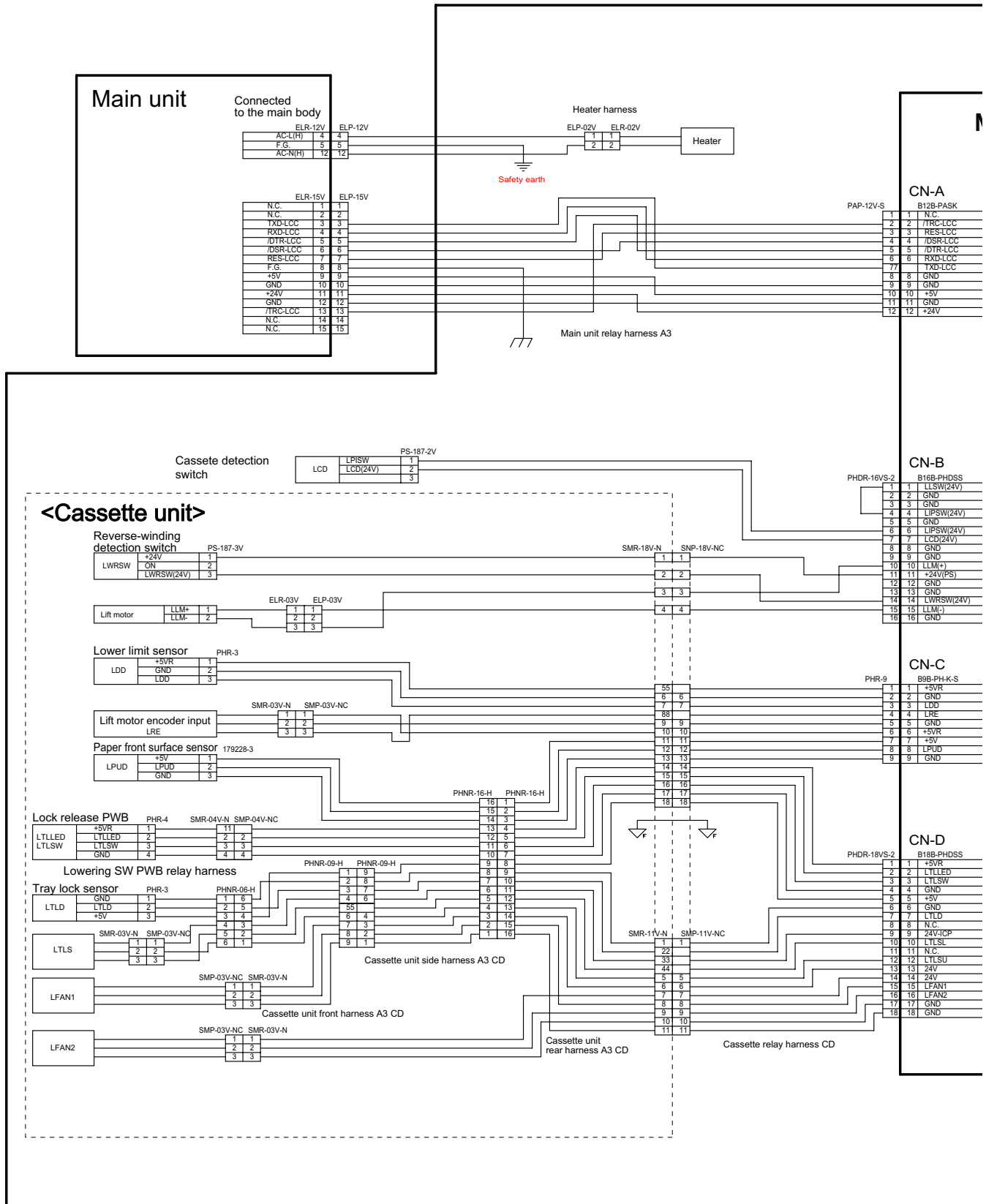
Trouble content		Malfunction of the LCC tray lock mechanism is detected.
Section		PCU
Case 1	Cause	Tray lock mechanism trouble
	Check and Remedy	Check the tray lock mechanism.
Case 2	Cause	Connector and harness connection trouble
	Check and Remedy	Check connection of the connector and the harness.
Case 3	Cause	Tray lock detection sensor trouble, LCC control PWB trouble
	Check and Remedy	Replace the tray lock detection sensor and the LCC control PWB.

U6-51 LCC incompatibility trouble

Trouble content		Detection of incompatible LCC connection.
Section		PCU
Case 1	Cause	Connection of incompatible LCC, is detected.
	Check and Remedy	Install compatible LCC.

[11] ELECTRICAL SECTION

1. Wiring diagram



MAIN PWB

CN-A
B12B-PASK

1	N.C.
2	/TRC-LCC
3	RES-LCC
4	/DSR-LCC
5	/DTR-LCC
6	RXD-LCC
7	/TXD-LCC
8	GND
9	GND
10	+5V
11	GND
12	+24V

CN-B
B19B-PHDSS

1	LLSW(24V)
2	GND
3	GND
4	LIPSW(24V)
5	GND
6	LIPSW(24V)
7	LCD(24V)
8	GND
9	GND
10	LLM(+)
11	+24V(PS)
12	GND
13	GND
14	LWRSW(24V)
15	LLM(-)
16	GND

CN-C
B9B-PHK-S

1	+5VR
2	GND
3	LDD
4	LRE
5	GND
6	+5VR
7	+5V
8	LPUD
9	GND

CN-D
B19B-PHDSS

1	+5VR
2	LYLED
3	LYLSW
4	GND
5	+5V
6	GND
7	LYLD
8	N.C.
9	24V-ICP
10	LYLSI
11	N.C.
12	LYLSU
13	24V
14	24V
15	LFAN1
16	LFAN2
17	GND
18	GND

CN-E
B11B-PHK-S

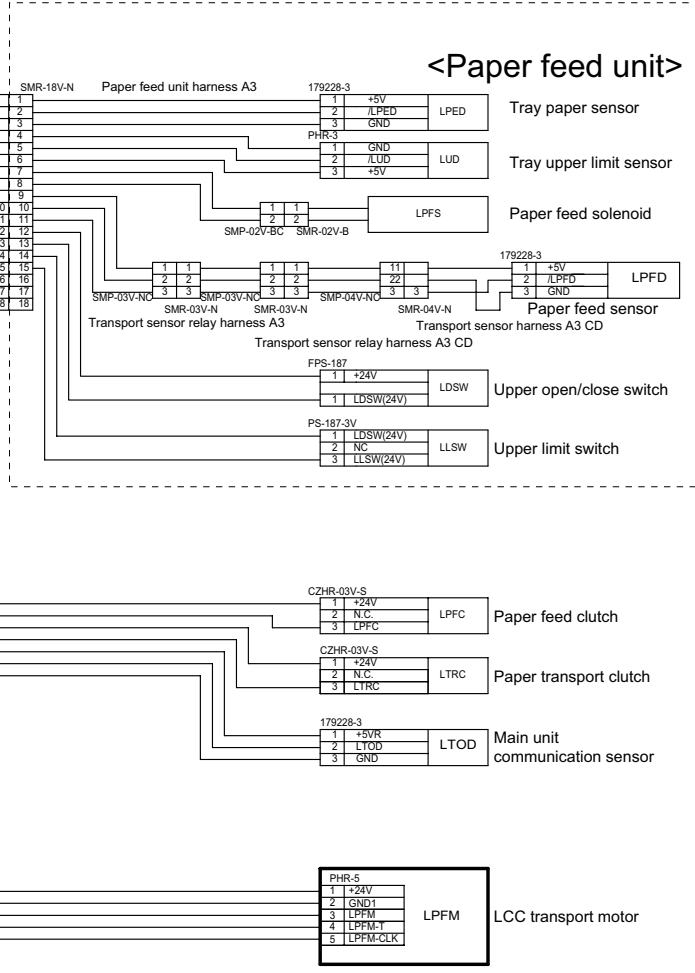
1	+5V
2	/LPED
3	GND
4	GND
5	/LUD
6	+5V
7	+24V
8	LPFS
9	+5V
10	GND
11	/LPFD

CN-F
B20B-PHDSS

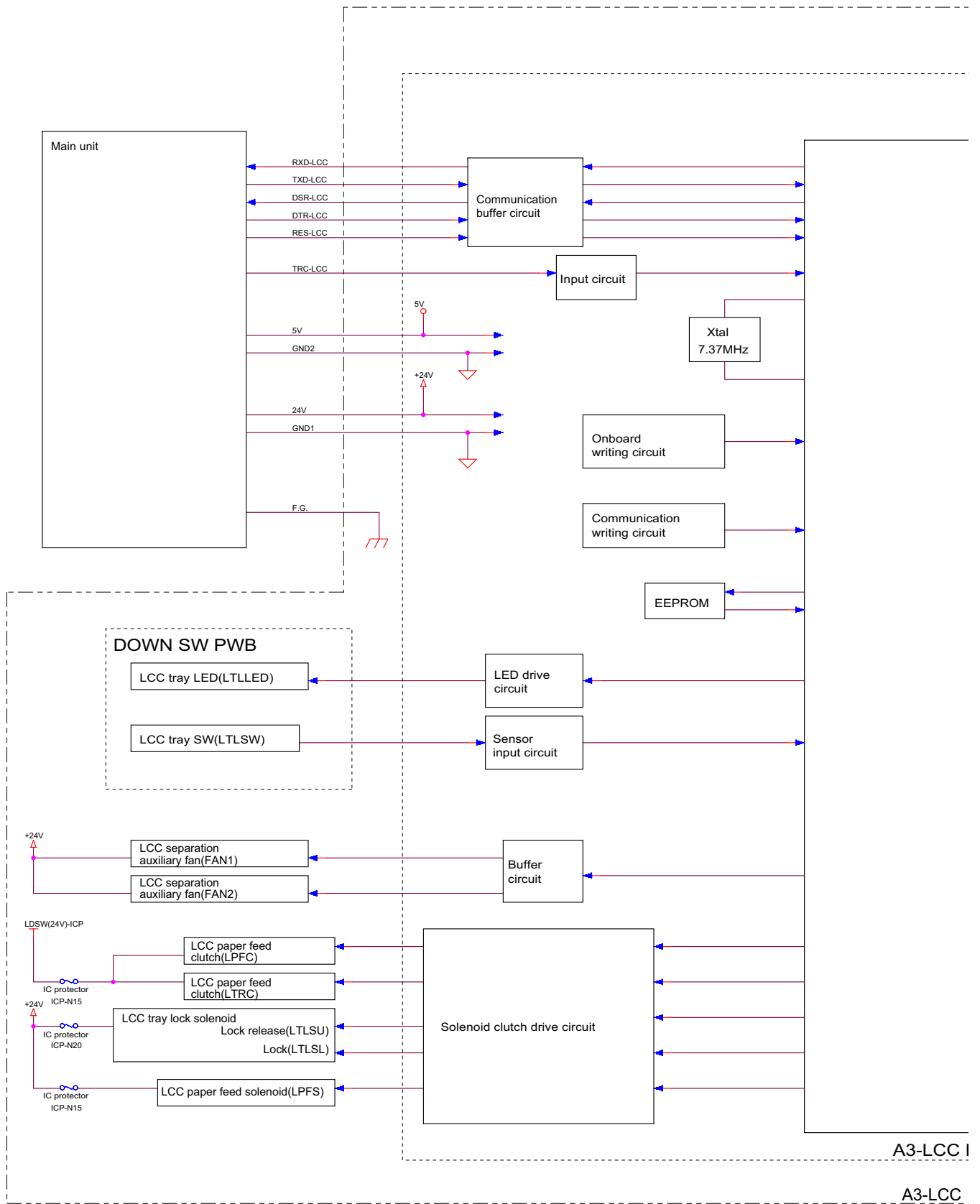
1	+24V(PS)
2	GND
3	GND
4	LDSW(24V)
5	GND
6	LDSW(24V)
7	LLSW(24V)
8	GND
9	GND
10	LDSW(24V)-ICP
11	LPFC
12	GND
13	GND
14	LDSW(24V)-ICP
15	LTRC
16	GND
17	GND
18	+5VR
19	LTOD
20	GND

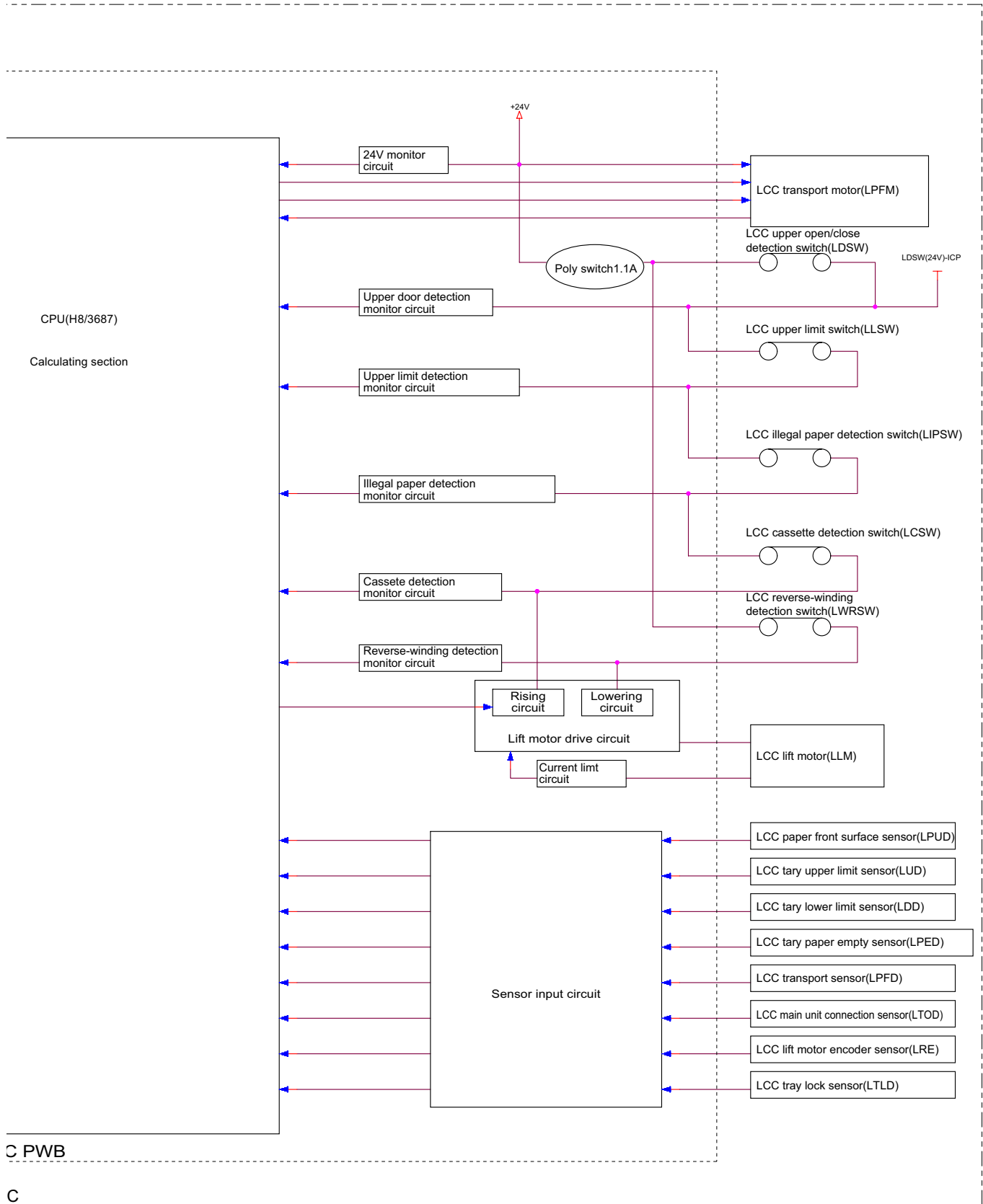
CN-G
B5B-PHK-S

1	+24V
2	GND
3	LPFM
4	LPFM-T
5	LPFM-CLK



2. Block diagram





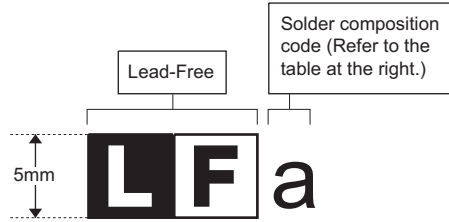
C PWB

C

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder. The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommended.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.

Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion si il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekt er Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

* Applicable to battery - operated equipment

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)
"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY
(MANGANESE DIOXIDE) MEMORY BACK-UP BATTERY
THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE
BATTERY FROM THE PRODUCT AND CONTACT YOUR
LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION
ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE
MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE)
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE
AGENCE ENVIRONNEMENTALE LOCALE POUR DES
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET
DE TRAITEMENT.

* Applicable to battery - operated equipment

