Konica

SERVICE MANUAL

Models
DB-209/210/409/410

MARCH 2001

CSM-DB209/210

KONICA BUSINESS TECHNOLOGIES, INC.

HOME

DB-209/210/409/410

SERVICE MANUAL

MARCH 2001

Used on Konica Models
7020, 7025, 7030, and 7035

HOME

IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Business Technologies strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Business Technologies, Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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1. OUTLINE

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SAFETY PRECAUTIONS

Installation Environment

Safety considerations usually are directed toward machine design and the possibility of human error. In addition, the environment in which a machine is operated must not be overlooked as a potential safety hazard.

Most electrical equipment is safe when installed in a normal environment. However, if the environment is different from what most people consider to be normal, it is conceivable that the combination of the machine and the room air could present a hazardous combination. This is because heat (such as from fusing units) and electrical arcs (which can occur inside switches) have the ability to ignite flammable substances, including air.

When installing a machine, check to see if there is anything nearby which suggests that a potential hazard might exist. For example, a laboratory might use organic compounds which, when they evaporate, make the room air volatile. Potentially dangerous conditions might be seen or smelled. *The presence of substances such as cleaners, paint thinners, gasoline, alcohol, solvents, explosives, or similar items should be cause for concern.*

If conditions such as these exist, take appropriate action, such as one of the following suggestions.

- Determine that the environment is controlled (such as through the use of an exhaust hood) so that an offending substance or its fumes cannot reach the machine.
- Remove the offending substance.
- Install the machine in a different location.

The specific remedy will vary from site to site, but the principles remain the same. To avoid the risk of injury or damage, be alert for changes in the environment when performing subsequent service on any machine, and take appropriate action.

Unauthorized Modifications

Konica copiers have gained a reputation for being reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of the copier is extremely important. It is the design process that determines tolerances and *safety margins* for mechanical, electrical, and electronic aspects. It is not reasonable to expect individuals not involved in product engineering to know what effect may be caused by altering any aspect of the machine's design. Such changes have the potential of degrading product performance and reducing safety margins.

For these reasons, *installation of any modification not specifically authorized by Konica Business Machines U.S.A., Inc., is strictly prohibited.*

The following list of prohibited actions is not all-inclusive, but demonstrates the intent of this policy.

- Using an extension cord or any unauthorized power cord adapter.
- Installing any fuse whose rating and physical size differs from that originally installed.
- Using wire, paper clips, solder, etc., to replace or eliminate any fuse (including temperature fuses).
- Removing (except for replacement) any air filter.
- Defeating the operation of relays by any means (such as wedging paper between contacts).
- Causing the machine to operate in a fashion other than as it was designed.
- Making any change which might have a chance of defeating built-in safety features.
- Using any unspecified replacement parts.

General Safety Guidelines

This copier has been examined in accordance with the laws pertaining to various product safety regulations prior to leaving the manufacturing facility to protect the operators and service personnel from injury. However, as with any operating device, components will break down through the wear-and-tear of everyday use, as will additional safety discrepancies be discovered. For this reason, it is important that the technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

The following checks, not all-inclusive, should be made during each service call:

CAUTION: Avoid injury. Ensure that the copier is disconnected from its power source before continuing.

- Look for sharp edges, burrs, and damage on all external covers and copier frame.
- Inspect all cover hinges for wear (loose or broken).
- Inspect cables for wear, frays, or pinched areas.

- Ensure that the power cord insulation is not damaged (no exposed electrical conductors).
- Ensure that the power cord is properly mounted to the frame by cord clamps.
- Check the continuity from the round lug (GND) of the power cord to the frame of the copier – ensure continuity. An improperly grounded machine can cause an electrically-charged machine frame.

Safeguards During Service Calls

Confirm that all screws, parts, and wiring which are removed during maintenance are installed in their original positions.

- When disconnecting connectors, do not pull the wiring, particularly on AC line wiring and high voltage parts.
- Do not route the power cord where it is likely to be stepped on or crushed.
- Carefully remove all toner and dirt adhering to any electrical units or electrodes.
- After part replacement or repair work, route the wiring in such a way that it does not contact any burrs or sharp edges.
- Do not make any adjustments outside of the specified range.

Applying Isopropyl Alcohol

Care should be exercised when using isopropyl alcohol, due to its flammability. When using alcohol to clean parts, observe the following precautions:

- Remove power from the equipment.
- Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with rags and disposed of properly.
- Be sure that there is adequate ventilation.
- Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

Summary

It is the responsibility of every technician to use professional skills when servicing Konica products. There are no short cuts to high-quality service. Each copier must be thoroughly inspected with respect to safety considerations as part of every routine service call. The operability of the copier, and more importantly, the safety of those who operate or service the copier, are directly dependent upon the conscientious effort of each and every technician.

Remember...when performing service calls, use good judgement (have a watchful eye) to identify safety hazards or potential safety hazards that may be present, and correct these problem areas as they are identified -- the safety of those who operate the copier as well as those who service the copier depend on it!

DB-209/210 PRODUCT SPECIFICATIONS

[1] Type

Type: Tray paper feed
(Front loading)

[2] Functions

Paper size:

U.S.A.	Europe and others
11 × 17, 8.5 × 14, 8.5 × 11R, 8.5 × 11, 5.5 × 8.5, F4, A3, A4R, A4, A5R	A3, B4, A4, A4R, B5, A5R, 11 × 17, 8.5 × 11, 8.5 × 11R, F4

Paper type: 16 lb. to 24 lb. high quality paper

Maximum Paper capacity: 500 sheets x 2 trays
(22 lb.)

[3] Machine data

Power: DC24V/5V (supplied from main body)

Power consumption: Max.40VA (When the PTC heater is not in use.)

Weight: Approximately 56 lb.

Machine Dimensions: Length 22.8 in.
Depth 23.4 in.
Height 12.2 in.

[4] Maintenance

Maintenance: Same as main body

[5] Machine operation environment

Temperature: 50 to 86°F

Humidity: 20 to 80%RH

Note : Specifications are subject to change without notice.

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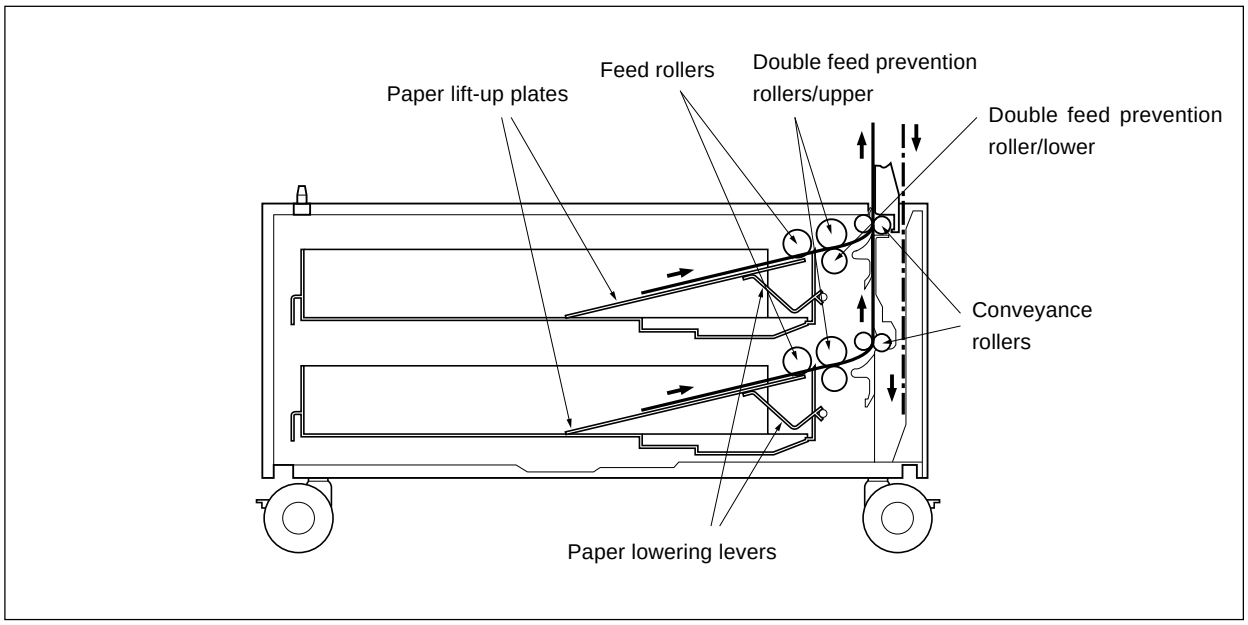
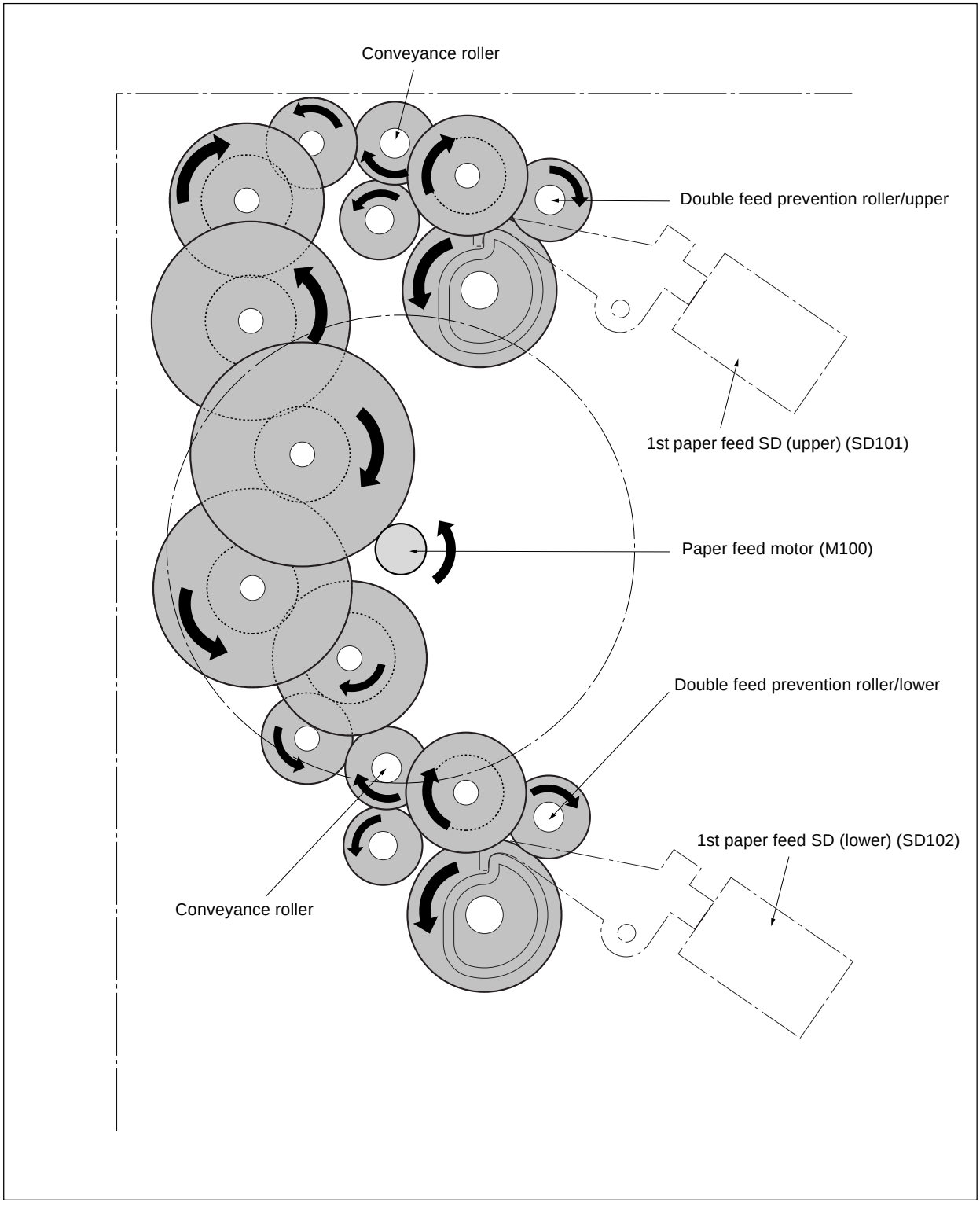
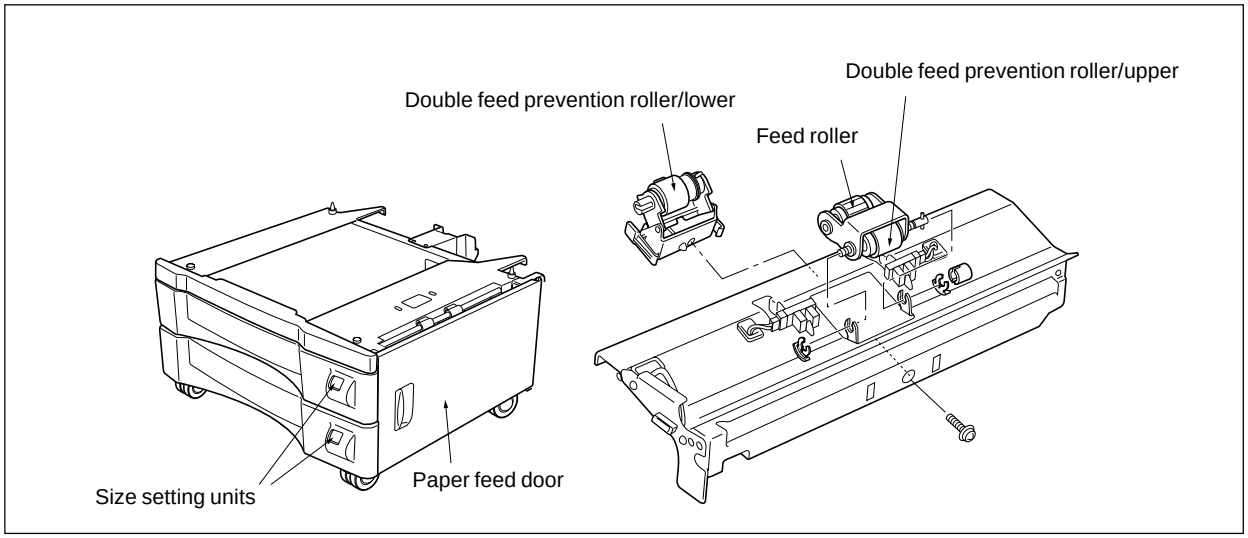


DRIVE SYSTEM DIAGRAM



PAPER FEED UNIT

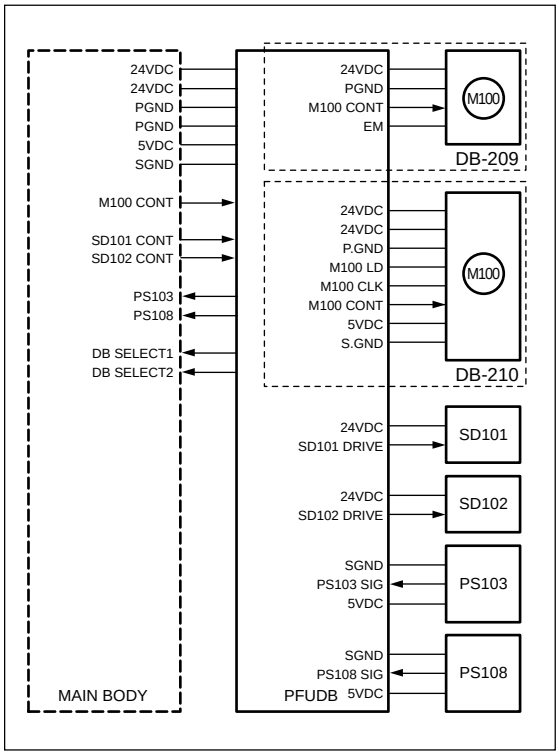
[1] Composition



[2] Mechanisms

Mechanism	Method
Paper feed	Paper feed roller
Paper lifting	Paper lift-up plate
Double feed prevention	Torque limiter
Tray loading	Front loading
1st paper feed	Paper feed SD Feed roller
Jam processing	Release of pressure on double feed prevention roller
No paper detect	Photosensor
Paper size detect	Size setting unit
Paper conveyance	Roller conveyance
Conveyance drive	Gears

[3] Paper feed and no paper detection control



Paper feed is carried out by transmitting the drive of the M100 (Paper feed motor) to the upper and lower paper feed rollers and to the feed rollers. When feed starts, SD101 (1st. paper feed SD (upper)) or SD102 (1st. paper feed SD (lower)) raises and lowers the feed roller and contacts the paper.

Drive of the M100, SD101 and SD102 is carried out by PFUDB (PFU drive board)and controlled by the main body.

No paper detection is carried out with PS103 (No paper detect PS (upper)) and PS108 (No paper detect PS (lower)) and controlled by the main body via the PFUDB.

1. Operation

a. Paper feed operation timing (upper tray)

(1) 1st. sheet start

A specified time after start-button is turned ON

(2) 2nd. sheet start

A specified time after 1st. sheet SD101 is turned ON

(3) OFF timing

A specified time after SD101 is turned ON

b. Paper feed operation timing (lower tray)

(1) 1st. sheet start

A specified time after start-button is turned ON

(2) 2nd. sheet start

A specified time after 1st. sheet SD102 is turned ON

(3) OFF timing

A specified time after SD102 is turned ON

c. No paper detection

If paper in the tray is used up, PS103 or PS 108 goes OFF and the no paper detection signal of each tray is sent to the main body via the PFUDB.

2. Signals

a. Input signals

(1) PS103 SIG (PS103 -> PFUDB)

Upper tray paper/no paper detection signal

[H] :no paper

[L] : with paper

(2) PS108 SIG (PS108 -> PFUDB)

Lower tray paper/no paper detection signal

[H] :no paper

[L] : with paper

(3) SD101 CONT (MAIN BODY -> PFUDB)

SD101 ON/OFF control signal from main body

[H] :OFF

[L] : ON

(4) SD102 CONT (MAIN BODY -> PFUDB)

SD102 ON/OFF control signal from main body

[H] :OFF

[L] : ON

b. Output signals

(1) M100 CONT (PFUDB -> M100)

M100 drive control signal

[H] :M100 OFF

[L] :M100 ON

(2) M100 CLK (PFUDB -> M100)

M100 revolution control board clock signal

(3) SD101 (PFUDB -> SD101)

SD101 drive control signal

[H] :OFF

[L] : ON

(4) SD102 DRIVE (PFUDB -> SD102)

SD102 drive control signal

[H] :OFF

[L] : ON

(5) PS103 (PFUDB -> MAIN BODY)

Upper tray paper/no paper detection signal sent to main body

(6) PS108 (PFUDB -> MAIN BODY)

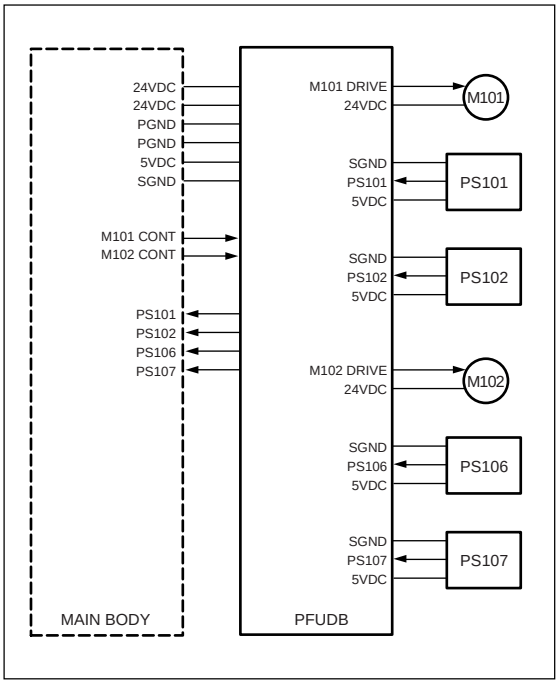
Lower tray paper/no paper detection signal sent to main body

(7) DB SELECT (PFUDB -> MAIN BODY)

DB Type identification signals sent to main body

	Signal	
DB	DB-SELECT 1	DB-SELECT 0
DB-209/210	H	L
Not connected	H	H
Undefined	L	L

[4] Tray up and down control



1. Operation

When the paper feed tray of each level is set, PS101 (Tray detect PS (upper)) and PS106 (Tray detect PS (lower)) detect the tray, M101 (Tray motor 1) and M102 (Tray motor 2) turn on and lift the base plate in the tray. When the tray is lifted, PS102 (Upper limit detect PS (upper)) and PS 107 (Upper limit detect PS (lower)) detect the paper upper limit and turn ON, M101 and M102 turn off and the raising of the tray is completed.

The down operation of the trays is performed mechanically.

2. Signals

a. Input signals

(1) PS101 (PS101 -> PFUDB)

Upper tray detect signal
By turning ON with [L] showing, M101 raises the paper in the upper tray.

(2) PS106 (PS106 -> PFUDB)

Lower tray detect signal
By turning on with [L] showing, M102 raises the paper in the lower tray.

(3) PS102 (PS102 -> PFUDB)

Upper tray paper upper limit detect signal
When the upper tray is raised and arrives at the upper limit position, the signal becomes [H] and M101 is turned off.

(4) PS107 (PS107 -> PFUDB)

Lower tray paper upper limit detect sensor
When the lower tray is raised and arrives at the upper limit position, the signal becomes [H] and M102 is turned off.

(5) M101 CONT (MAIN BODY -> PFUDB)

M101 ON/OFF control signal from main body

(6) M102 CONT (MAIN BODY -> PFUDB)

M102 ON/OFF control signal from main body

b. Output signals

(1) M101 DRIVE (PFUDB -> M101)

M101 drive control signal
[L] : M101 ON
[H] :M101 OFF

(2) M102 DRIVE (PFUDB -> M102)

M102 drive control signal
[L] : M102 ON
[H] :M102 OFF

(3) PS101 (PFUDB -> MAIN BODY)

Upper tray detect signal sent to main body

(4) PS102 (PFUDB -> MAIN BODY)

Upper tray paper upper limit detect signal sent to main body

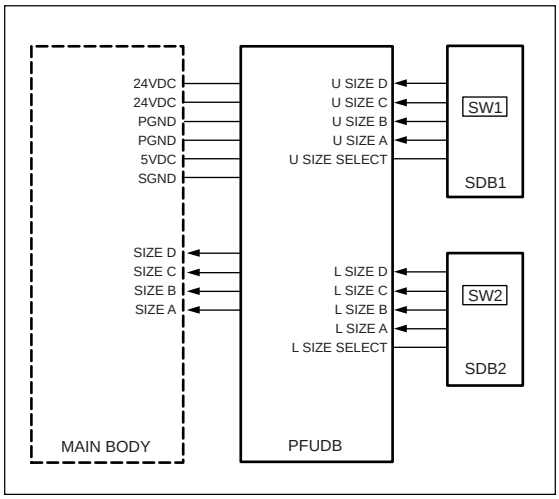
(5) PS106 (PFUDB -> MAIN BODY)

Lower tray detect signal sent to main body

(6) PS107 (PFUDB -> MAIN BODY)

Lower tray paper upper limit detect signal sent to main body

[5] Paper size detection control



Tray paper size is detected in the main body by a signal sent from SDB1(size detection board1) and SDB2 (size detection board2) via the PFUDB (PFU drive board).

1. Operation

a. Tray paper size detection

Paper size for either tray is set by SW1 and SW2 above SDB1 and SDB2 and the PFUDB detects the switch signal corresponding to the position of SW1 and SW2.

The relation between switch signal and paper size is as follows.

For U.S.A.

Paper size (Label display order)	Switch signal			
	SIZE A	SIZE B	SIZE C	SIZE D
11 x 17				
A5R	○			
A4		○		
A4R	○	○		
A3			○	
F4	○		○	
5.5 x 8.5		○	○	
8.5 x 11	○	○	○	
8.5 x 11R				○
8.5 x 14	○			○

For Europe

Paper size (Label display order)	Switch signal			
	SIZE A	SIZE B	SIZE C	SIZE D
11 x 17				
B5	○			
B4		○		
A5R	○	○		
A4			○	
A4R	○		○	
A3		○	○	
F4	○	○	○	
11				○
11R	○			○

2. Signals

a. Input signals

(1) U SIZE A - D (SDB1 -> PFUDB)

Upper tray paper size detect signal

(2) U SIZE A - D (SDB2 -> PFUDB)

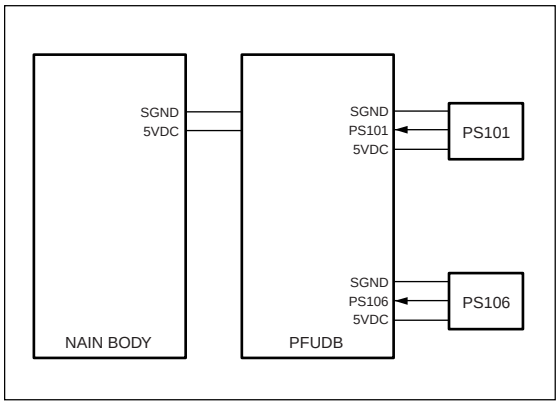
Lower tray paper size detect signal

b. Output signal

(1) SIZE A - D (PFUDB -> MAIN BODY)

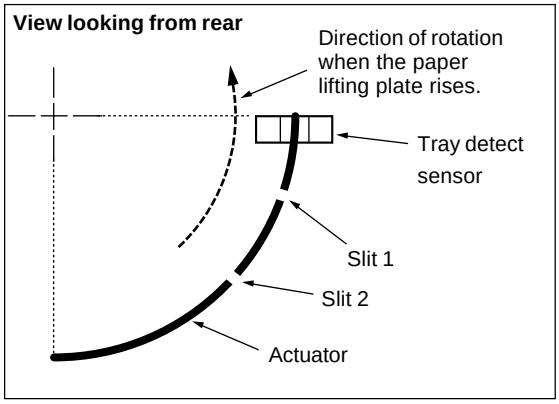
Paper size detection signal sent to main body

[6] Control of paper-level detection



After the trays have been set in the machine, paper level is detected by PS101 (tray detect sensor PS (upper)) and PS106 (tray detect sensor PS (lower)).

As the paper level in tray runs low, the actuator at the rear part of the tray gradually rotates as illustrated below. The level is detected by the number of times the sensor goes ON/OFF (the number of slits detected).



1. Operation

a. Detection of paper level in tray

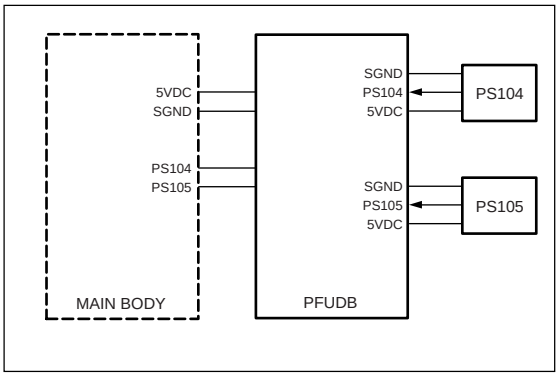
The following shows the relation between the paper level and the number of slit detections by the sensor (PS101 or PS106).

0 slits : Full

1 slit : Medium

2 slits : Low

[7] Jam detection control



1. Operation

Jam detection control is performed by the main body when it has judged the changes in the PS104 (jam detect PS1) and PS105 (jam detecting PS2) detection signals. If the ON detection signal of each sensor does not change after a specified time, it is judged that there is a paper jam.

2. Signals

a. Input signals

(1) PS104 (PS104 -> PFUDB)

Turns on when [H] is showing, and notifies the main body of the presence or absence of paper in the upper part of the DB.

(2) PS105 (PS105 -> PFUDB)

Goes ON when the level is [H], and notifies the main body of the existence or otherwise of paper in the lower part of the DB and also of whether the paper feed door is open or closed.

b. Output signals

(1) PS104 (PFUDB -> MAIN BODY)

PS104 detect signal sent to main body

(2) PS 105 (PFUDB -> MAIN BODY)

PS105 detect signal sent to main body

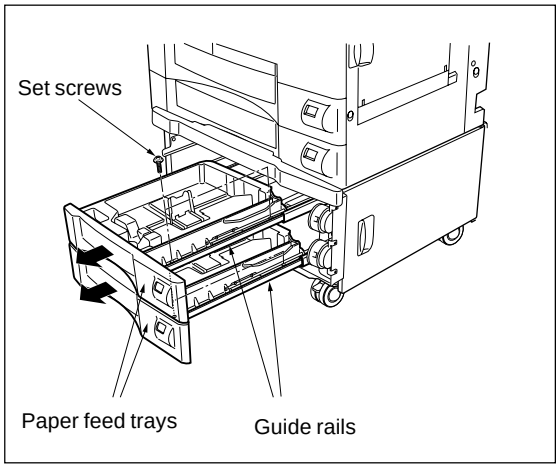
DISASSEMBLY/ASSEMBLY

⚠**Caution: Make sure the power plug is taken out of the socket.**

[1] Removing and reinstalling paper feed tray

(1) Pull out the paper feed tray and take out the 2 set screws on the right hand side.

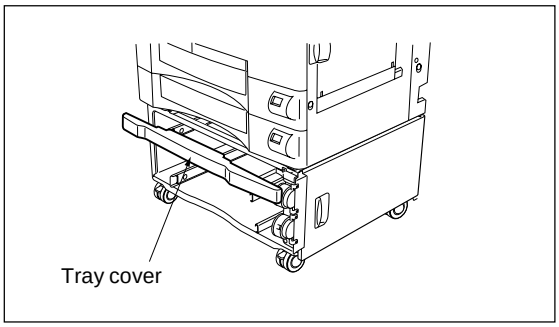
(2) Remove the paper tray from the guide rails.



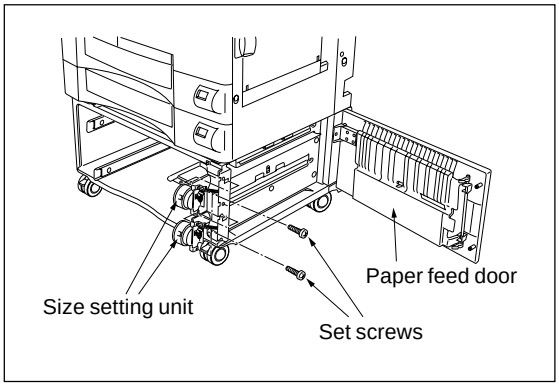
(3) Install by reversing the removal procedure.

[2] Removing and reinstalling the paper feed unit

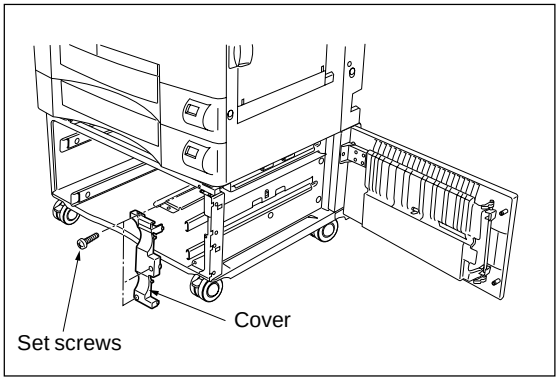
(1) Remove the tray cover and the paper tray.



(2) Opening the paper feed door, take out the 3 set screws and remove the size setting unit.

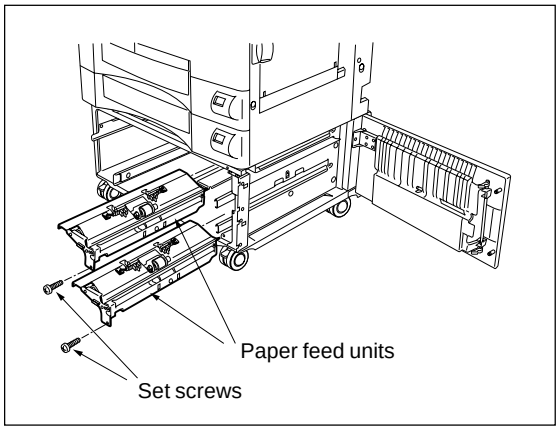


(3) Remove the 3 set screws and remove the cover.



(4) Remove the paper feed unit connector.

(5) Remove the 2 screws indicated by the engraved arrows and remove by drawing the paper feed unit forward.



(6) Install by reversing the removal procedure.

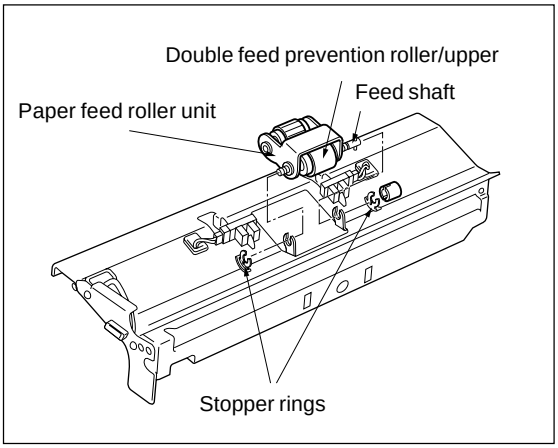
Caution: Immediately after installing the paper feed unit, as the swing gear and the paper feed solenoid are not in the correct position, it sometimes happens that paper is not fed. For this reason, always make a copy to confirm that operation is normal.

[3] Replacing of the feed roller rubber and double feed prevention rubber/upper

(1) Remove the paper feed unit.

(2) Remove the fixing rings and bearings.

(3) While withdrawing the paper feed shaft, remove the double feed prevention roller/upper from the paper feed roller unit.

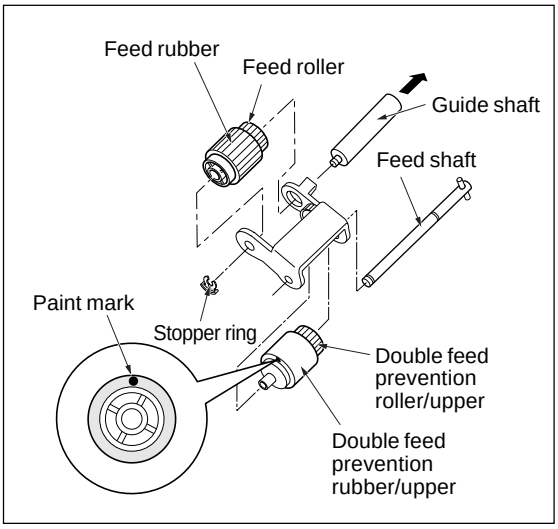


(4) Removing the fixing ring and remove the feed roller by withdrawing the guide shaft in the direction shown by the arrow.

(5) Remove the feed rubber from the feed roller.

(6) Remove the feed shaft and then remove the double feed prevention roller/upper.

(7) Remove the double feed prevention rubber/upper from the double feed prevention roller/upper.



(8) Install by reversing the removal procedure.

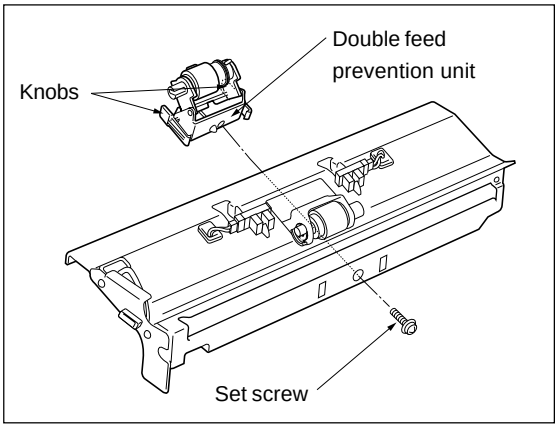
Caution: Pay attention to the direction in which you install each roller rubber. Install so that the swing-gear shaft enters the paper feed roller unit.

[4] Replacing the double feed prevention rubber/lower

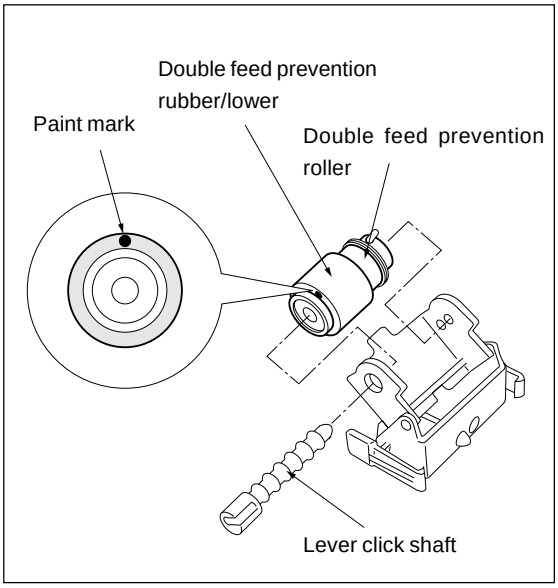
(1) Remove the paper feed unit.

(2) Remove the set screw.

(3) Pushing the knobs on either side of the double feed prevention unit, then remove by drawing it forward.



(4) While pushing the projection of the lever click shaft, withdraw it and remove the double feed prevention roller.



(5) Remove the double feed prevention rubber/lower from the double feed prevention roller.

(6) Install by reversing the removal procedure.

Caution : Pay attention to the direction in which you install each roller rubber.

When installing the double-feed prevention unit into the main body, be sure to align it with the center of the mark engraved on the main-body plate.

DB-409/410 PRODUCT SPECIFICATIONS

[1] Type

Type: Tray Paper Feed
(Front Loading)

[2] Functions

Paper size: A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R

Paper type: 16 lb. - 24 lb. high quality paper

Maximum paper capacity: 1,500 Sheets
(22 lb.)

[3] Machine data

Power: DC24V/5V (supplied from main body)

Power consumption: Max.40VA (When the PTC heater is not in use.)

Weight: Approximately 52 lb.

Machine dimensions: Length 22.8 in.
Depth 23.4 in.
Height 12.2 in.

[4] Maintenance

Maintenance: Same as main body

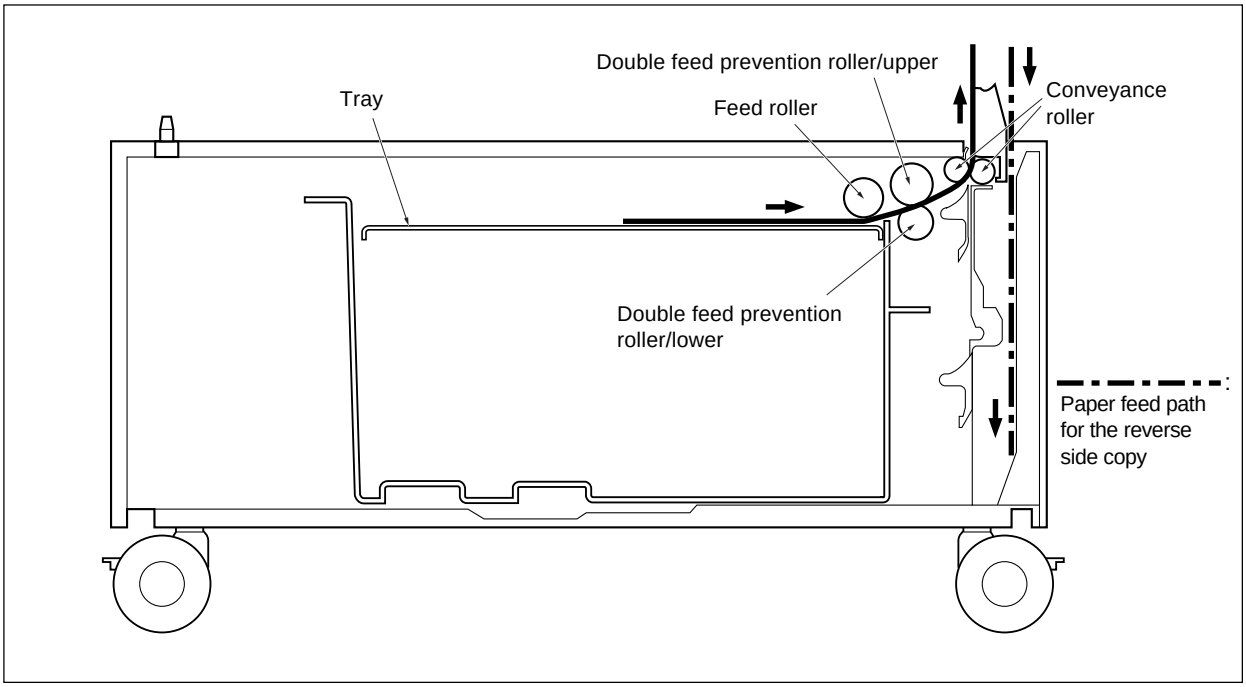
[5] Machine environment

Temperature: 50 to 86°F

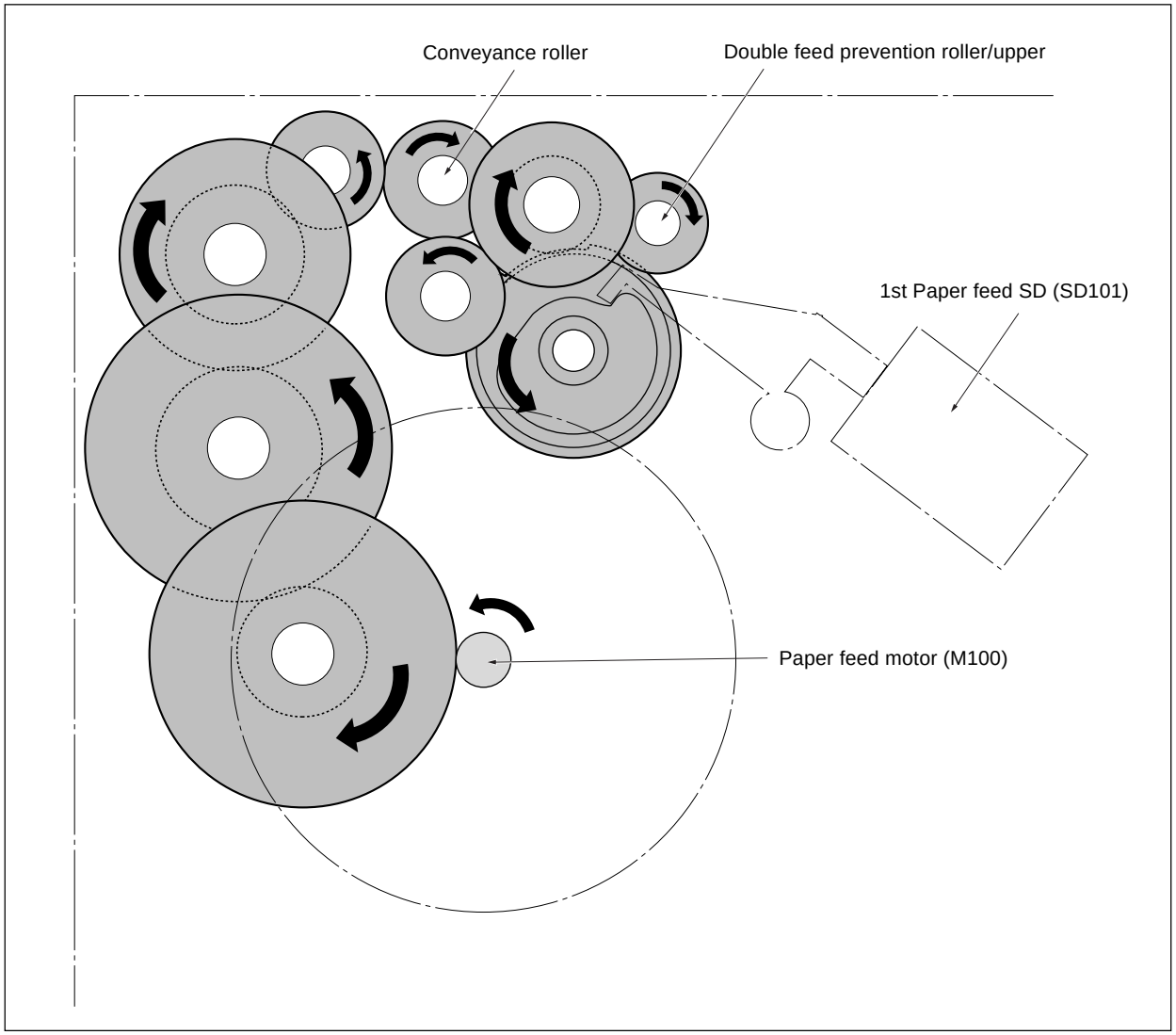
Humidity: 20 to 80%RH

Note : Specifications are subject to change without notice.

CENTER CROSS SECTION

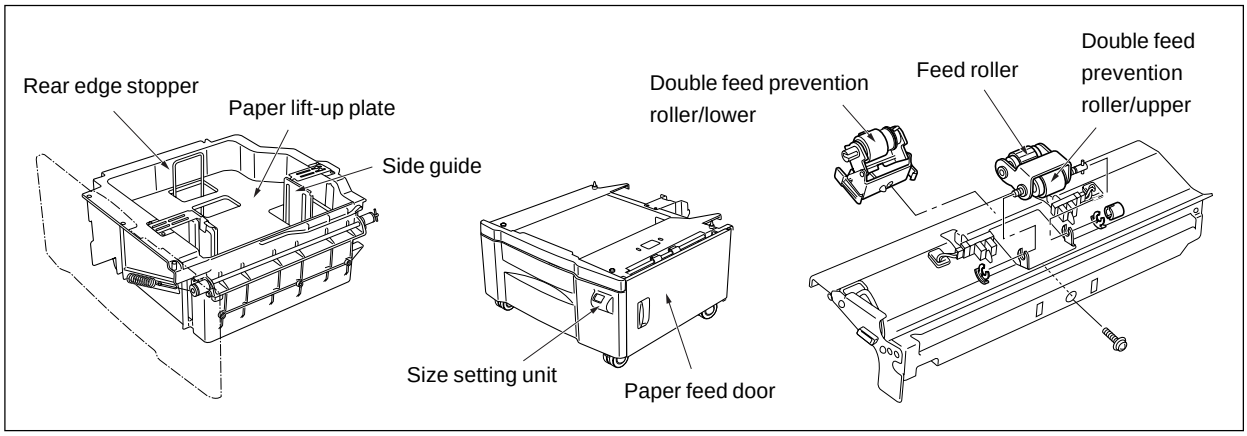


DRIVE SYSTEM DIAGRAM



PAPER FEED SECTION

[1] Composition



[2] Mechanisms

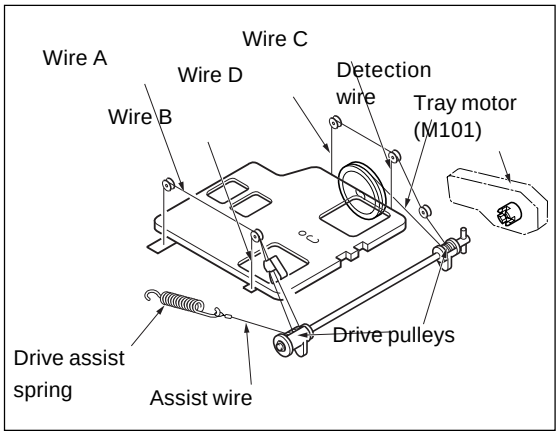
Mechanism	Method
Paper feed	Paper feed roller
Paper lift-up *	Paper lift-up plate
Double feed prevention	Torque limiter
Tray loading	Front loading
1st paper feed	Paper feed SD Feed roller
Jam processing	Release of pressure on double feed prevention roller
No paper detect	Photosensor
Paper size detect	Size setting unit
Paper conveyance	Roller conveyance
Conveyance drive	Gears

* Paper lift-up

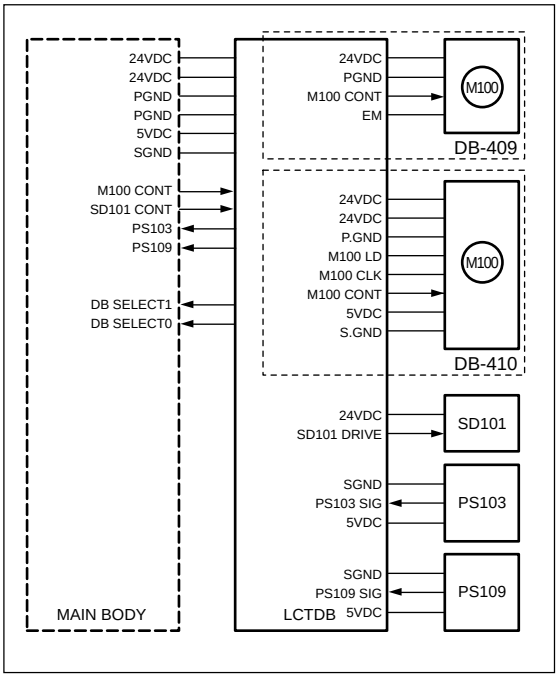
The paper tray (LCT) is suspended on 4 up/down drive wires (wires A, B, C, and D). When paper is supplied to the paper tray, the tray falls under the weight of the paper itself, but through the tension of the drive assist spring, balance with the weight of the paper is maintained.

When the paper tray (LCT) is loaded, the motor rotates, causing the wire to be wound around the drive pulley. As a result, the tray rises.

When the paper tray is withdrawn from the suspension base, the coupling with the drive is disconnected, and the tray falls to the position in which the balance between the weight of the paper and the drive-assist spring is maintained.



[3] Paper feed and no paper detection control



Paper feed is carried out by transmitting the drive of the M100 (DB paper feed motor) to the paper feed roller and to the feed roller. When feed starts, SD101 (1st. paper feed SD) raises and lowers the feed roller and contacts the paper.

Drive of the M100, SD101 is carried out by LCTDB (LCT drive board) and controlled by the main body.

No paper detection is carried out with PS103 (No paper detect PS) and controlled by the main body via the LCTDB.

A related signal is the PS109 (Paper level detect PS2) which sent the remaining paper level to the main body.

1. Operation

a. Paper feed operation timing

(1) 1st. sheet start

A specified time after start button is turned ON

(2) 2nd. sheet start

A specified time after 1st. sheet SD101 is turned ON

(3) OFF timing

A specified time after SD101 is turned ON

b. No paper detection

If paper in the tray is used up, PS103 goes OFF and no paper detection signal is sent to the main body via the LCTDB.

2. Signals

a. Input signals

(1) PS103 (PS103 -> LCTDB)

Tray paper/no paper detection signal

[H]: no paper

[L] : with paper

(2) PS109 (PS109 -> LCTDB)

Paper level in tray detection signal

Turns on with [L], sends main body that little paper is left.

(3) SD101 CONT (MAIN BODY -> LCTDB)

SD101 ON/OFF control signal from main body

[H]: OFF

[L] : ON

b. Output signals

(1) M100 CONT (LCTDB -> M100)

M100 drive control signal

[H]: M100 OFF

[L]: M100 ON

(2) M100 CLK (LCTDB -> M100)

M100 rotation control board clock signal

(3) SD101 (LCTDB -> SD101)

SD101 drive control signal

[H]: OFF

[L] : ON

(4) PS103 (LCTDB -> MAIN BODY)

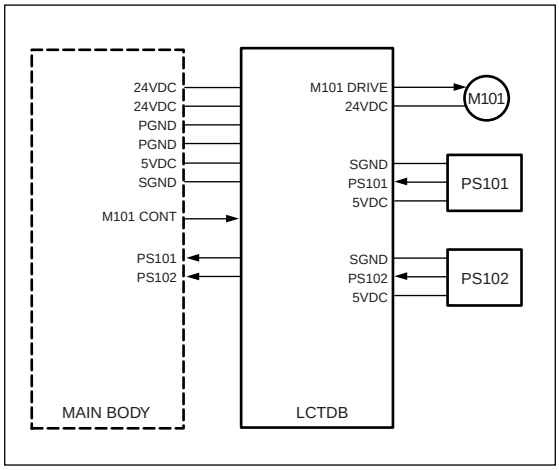
Paper/no paper detection signal sent to main body

(5) DB SELECT (LCTDB -> MAIN BODY)

DB type identification signals that is sent to the main body

	Signal	
DB	DB-SELECT 1	DB-SELECT 0
DB-409/410	L	H
Not connected	H	H
Undefined	L	L

[4] Tray up and down control



1. Operation

When the paper feed tray of each level is set, PS101 (Tray detect PS) detects the tray, M101 (Tray motor) turns ON and lifts the base plate in the tray. When the tray is lifted, PS102 (Paper level detect PS1) detects the paper upper limit and turns on, then M101 turns off and the raising of the tray is completed.

The down operation of the trays is performed mechanically.

2. Signals

a. Input signals

(1) PS101 (PS101 -> LCTDB)

Tray detect signal

By turning with [L] showing, M101 raises the paper in the upper tray.

(2) PS102 (PS102 -> LCTDB)

Upper tray upper limit detection signal

When the upper tray paper is lifted and arrives at the upper limit position, the signal becomes [H] and M101 is turned off.

(3) M101 CONT (MAIN BODY -> LCTDB)

M101 ON/OFF control signal from main body

b. Output signals

(1) M101 DRIVE (LCTDB -> M101)

M101 drive control signal

[L]: M101 ON

[H]: M101 OFF

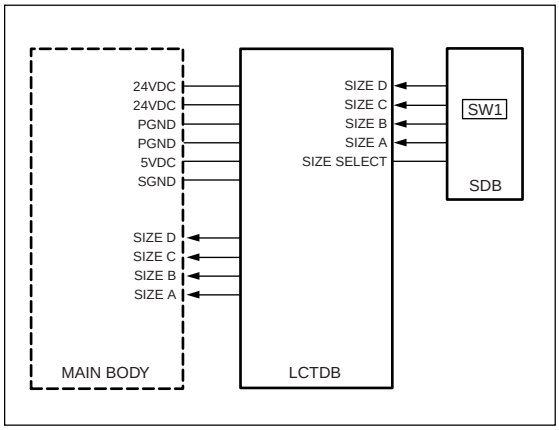
(2) PS101 (LCTDB -> MAIN BODY)

Tray detection signal sent to main body

(3) PS102 (LCTDB -> MAIN BODY)

Paper upper limit detect signal sent to main body

[5] Paper size detection control



Tray paper size is detected in the main body by a signal sent from SDB (size detection board) via the LCTDB (LCT drive board).

1. Operation

a. Tray paper size detection

Paper size for either tray is set by SW1 above SDB and the LCTDB detects the switch signal corresponding to the position of SW1.

The relation between switch signal and paper size is as follows.

Paper size (Label display order)	Switch signal			
	SIZE A	SIZE B	SIZE C	SIZE D
8.5 x 11R				
A4	○			
A4R		○		
8.5 x 11	○	○		
8.5 x 11R			○	
B5R	○		○	
B5		○	○	
A4	○	○	○	
A4R				○
8.5 x 11	○			○

2. Signals

a. Input signal

(1) SIZE A - D (SDB -> LCTDB)

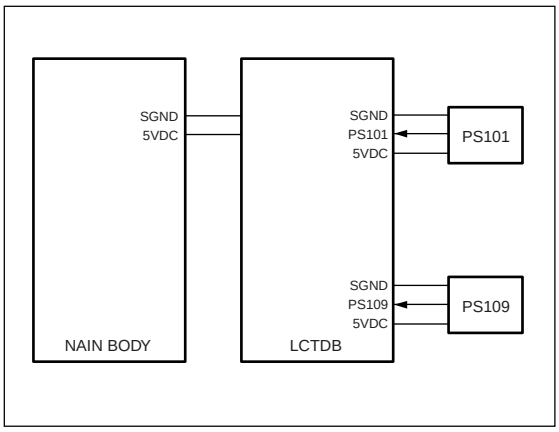
Tray paper size detect signal

b. Output signal

(1) SIZE A - D (LCTDB -> MAIN BODY)

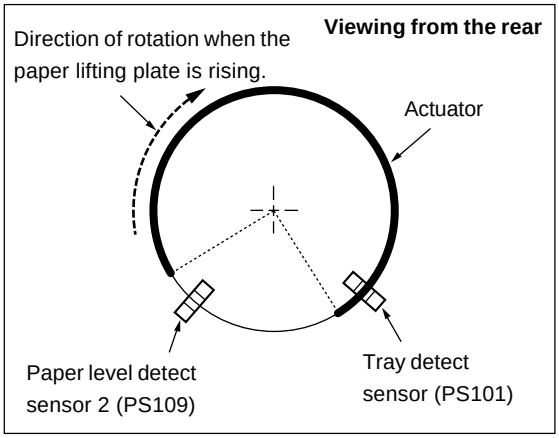
Paper size detection signal sent to main body

[6] Control of paper-level detection



After the trays have been set in the machine, paper level is detected by PS101 (tray detect PS) and PS109 (paper level detect PS2).

As the paper level in tray runs low, the actuator at the rear part of the tray gradually rotates as illustrated below. The remaining paper level is detected based on the ON/OFF states of PS101 and PS109.



1. Operation

a. Detection of paper level in tray

The following shows the relation between the paper level and the number of slit detections by the sensor (PS101 or PS109).

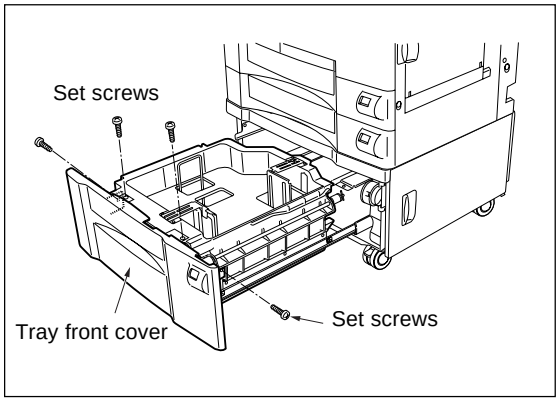
Paper level	PS101	PS109
Full	○	
Medium	○	○
Low		○

DISASSEMBLY/ASSEMBLY

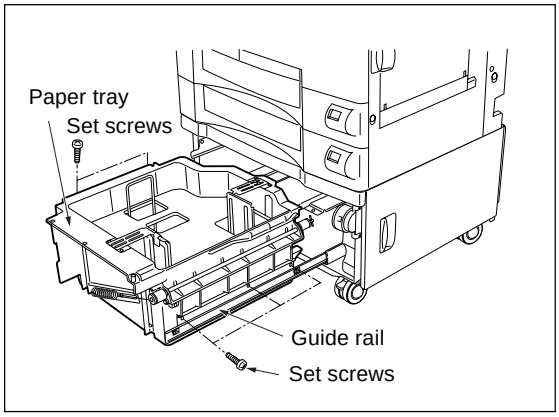
⚠**Caution: Make sure the power plug is taken out of the socket.**

[1] Removing and reinstalling the paper feed tray

(1) Pull out the paper tray and take out the 4 set screws and remove the tray front cover.



(2) Remove the 5 set screws from the guide rails and remove paper tray from guide rails.

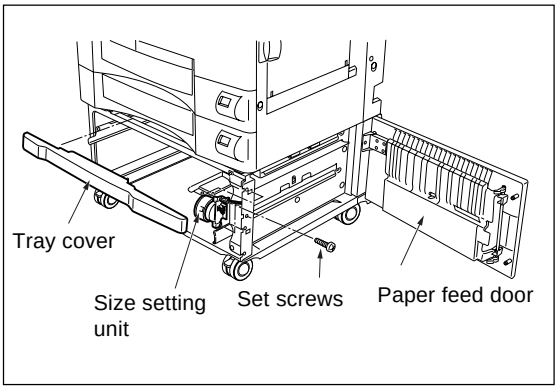


(3) Install by reversing the removal procedure.

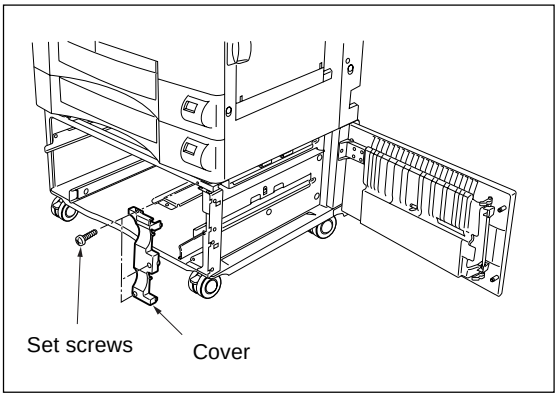
[2] Removing and reinstalling the paper feed unit

(1) Remove the tray cover and the paper tray.

(2) Open the paper feed door, remove the three set screws, then remove the size setting unit.

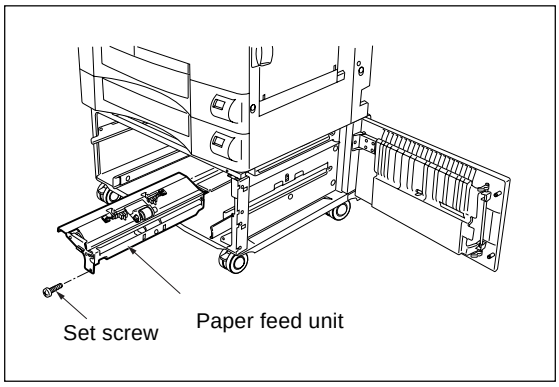


(3) Remove the 3 set screws and remove the cover.



(4) Remove the paper feed unit connector.

(5) Remove the set screw indicated by the arrow marking, and remove the paper-feed unit by pulling it forward.



(6) Install by reversing the removal procedure.

Caution 1: Immediately after installing the paper feed unit, as the swing gear and the paper feed solenoid are not in the correct position, it sometimes happens that paper is not fed. For this reason, always make a copy to confirm that operation is normal.

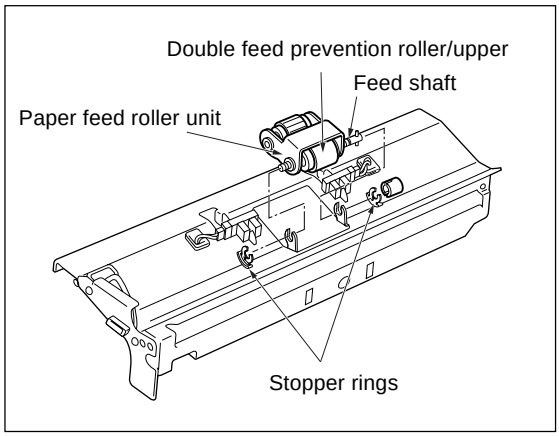
Caution 2: Install so that the swing gear shaft enters the paper feed roller unit.

[3] Replacing the feed roller rubber and double feed prevention rubber/upper

(1) Remove the paper feed unit.

(2) Remove the fixing rings and bearings.

(3) While withdrawing the paper feed shaft, remove the double feed prevention roller/upper from the paper feed roller unit.

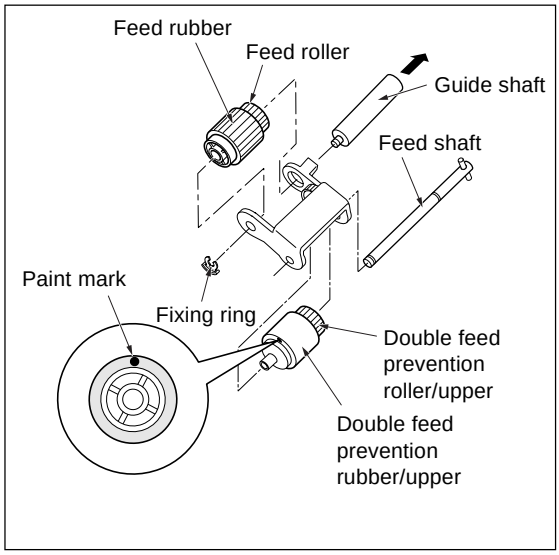


(4) Removing the fixing ring and remove the feed roller by withdrawing the guide shaft in the direction shown by the arrow.

(5) Remove the feed rubber form the feed roller.

(6) Remove the feed shaft and then remove the double feed prevention roller/upper.

(7) Remove the double feed prevention rubber/upper from the double feed prevention roller/upper.



(8) Install by reversing the removal procedure.

Caution: Pay attention to the direction in which you install each roller rubber. Install so that the swing-gear shaft enters the paper feed roller unit.