Konica

SERVICE MANUAL

Models
7145/7222/7228/7235

APRIL 2004
CSM-7145/7222/7228/7235

KONICA MINOLTA BUSINESS SOLUTIONS U.S.A., INC.

7145/7222/7228/7235

SERVICE MANUAL

APRIL 2004

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 Minolta Business Solutions U.S.A., Inc. strongly recommends that all servicing be performed by Konica Minolta-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Minolta Business Solutions U.S.A., 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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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

⚠ Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Konica Minolta Business Technologies, INC. (hereafter called the KMBT) strongly recommends that all servicing be performed only by KMBT-trained service technicians.
Changes may have been made to this copier to improve its performance after this Service Manual was printed. Accordingly, KMBT does not warrant, either explicitly or implicitly, that the information contained in this Service Manual is complete and accurate.
The user of this Service Manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this Service Manual is intended.
Therefore, this Service Manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.
Keep this Service Manual also for future service.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

⚠ In this Service Manual, each of three expressions "⚠DANGER", "⚠WARNING", and "⚠CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

⚠**DANGER** :**Action having a high possibility of suffering death or serious injury**
⚠**WARNING**:**Action having a possibility of suffering death or serious injury**
⚠**CAUTION** :**Action having a possibility of suffering a slight wound, medium trouble, and property damage**

Symbols used for safety and important warning items are defined as follows:

△:Precaution when using the copier.


General precaution


Electric hazard


High temperature

⃠:Prohibition when using the copier.


General prohibition


Do not touch with wet hand


Do not disassemble

●:Direction when using the copier.


General instruction


Unplug


Ground/Earth

SAFETY WARNINGS

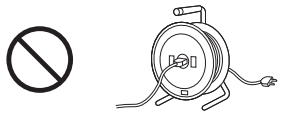
⚠1 [1] MODIFICATIONS NOT AUTHORIZED BY KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.

Konica Minolta brand copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

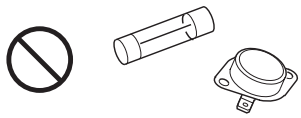
Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

⚠ DANGER : PROHIBITED ACTIONS

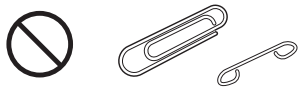
⚠1 • Using any cables or power cord not specified by KMBT.



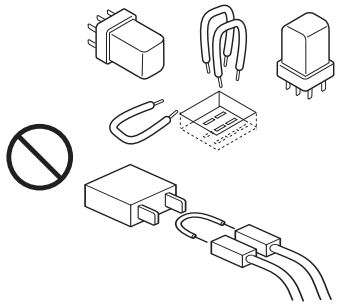
⚠1 • Using any fuse or thermostat not specified by KMBT. Safety will not be assured, leading to a risk of fire and injury.



• Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.



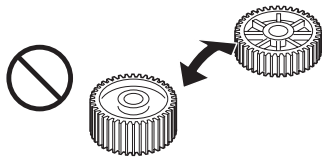
• Disabling relay functions (such as wedging paper between relay contacts)



• Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury.

⚠1 • Making any modification to the copier unless instructed by KMBT

⚠1 • Using parts not specified by KMBT



[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

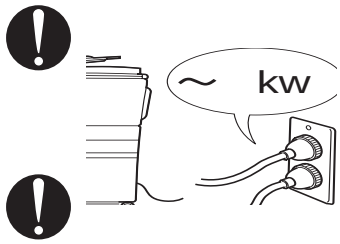
⚠ Konica Minolta brand copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1.Power Supply

⚠WARNING: Wall Outlet

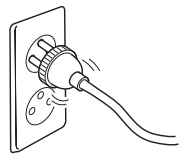
- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.
  If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.
  If excessive current flows in the wall outlet, fire may result.

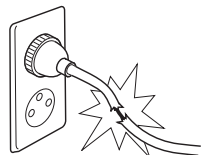


⚠WARNING: Power Plug and Cord

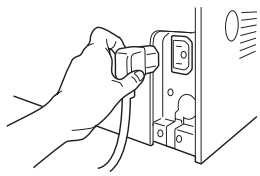
- Make sure the power cord is plugged in the wall outlet securely.
  Contact problems may lead to increased resistance, overheating, and the risk of fire.



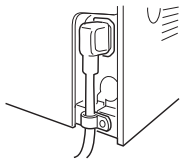
⚠ • Check whether the power cord is damaged. Check whether the sheath is damaged.
  If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT. Using the damaged power cord may result in fire or electric shock.



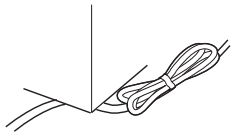
- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:
  a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier.
     Secure the cord with a fixture properly.



⚠ b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT.
     If the power cord (inlet type) is not connected to the copier securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

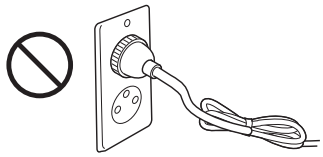


- Check whether the power cord is not stepped on or pinched by a table and so on.
  Overheating may occur there, leading to a risk of fire.

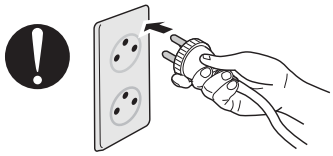


⚠WARNING: Power Plug and Cord

- Do not bundle or tie the power cord.
  Overheating may occur there, leading to a risk of fire.

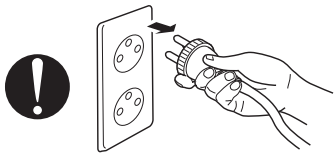


- Check whether dust is collected around the power plug and wall outlet.
  Using the power plug and wall outlet without removing dust may result in fire.



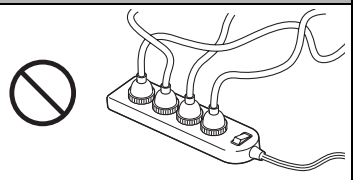
- Do not insert the power plug into the wall outlet with a wet hand.
  The risk of electric shock exists.

- When unplugging the power cord, grasp the plug, not the cable.
  The cable may be broken, leading to a risk of fire and electric shock.

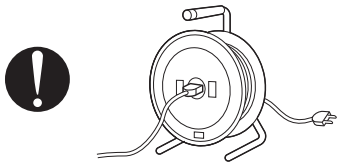


⚠WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.
  If used, the risk of fire exists.

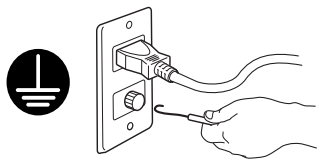


- When an extension cord is required, use a specified one.
  Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
  Do not use an extension cable reel with the cable taken up. Fire may result.



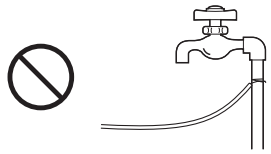
⚠WARNING: Ground Lead

- Check whether the copier is grounded properly.
  If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
  a. Ground terminal of wall outlet
  b. Ground terminal for which Class D work has been done



⚠WARNING: Ground Lead

- Pay attention to the point to which the ground lead is connected.
  Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
  a. Gas pipe (A risk of explosion or fire exists.)
  b. Lightning rod (A risk of electric shock or fire exists.)
  c. Telephone line ground (A risk of electric shock or fire exists in the case of lightning.)
  d. Water pipe or faucet (It may include a plastic portion.)



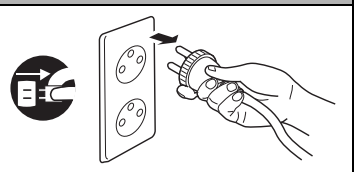
2.Installation Requirements

⚠WARNING: Prohibited Installation Place

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.
  A risk of fire exists.
- Do not place the copier in a place exposed to water such as rain water.
  A risk of fire and electric shock exists.

⚠WARNING: Nonoperational Handling

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
  Dust collected around the power plug and outlet may cause fire.



⚠CAUTION: Temperature and Humidity

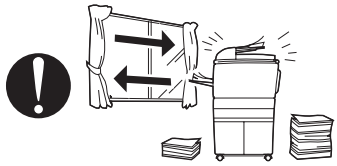
- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.
  A risk of degradation in copier performance or deformation exists.
  Do not place the copier in a place exposed to cool wind.
  Recommended temperature and humidity are as follows:
  Temperature: 10°C to 30°C
  Humidity: 10% to 80% (no dew condensation)
  Avoid other environments as much as possible.

⚠CAUTION: Ventilation

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.
  Place the copier in a well ventilated place to prevent machine problems and image faults.

⚠CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.
  If a bad smell of ozone is present in the following cases, ventilate the room.
  a. When the copier is used in a poorly ventilated room
  b. When taking a lot of copies
  c. When using multiple copiers at the same time



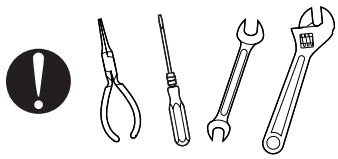
⚠CAUTION: Vibration

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.
  Constant vibration will cause problems.

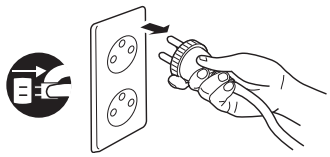
- Be sure to lock the caster stoppers.
  In the case of an earthquake and so on, the copier may slide, leading to a injury.

⚠CAUTION: Inspection before Servicing

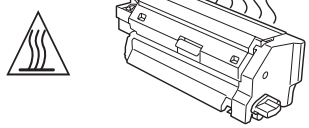
△2 • Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.
  If the prescribed procedure or tool is not used, the copier may break and a risk of injury or fire exists.



- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.
  When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.

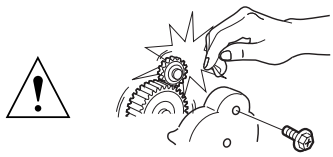


- The area around the fixing unit is hot.
  You may get burnt.



⚠DANGER: Work Performed with the Copier Powered

- Take every care when making adjustments or performing an operation check with the copier powered.
  If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



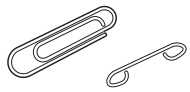
⚠DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached.
  High-voltage exists around the drum unit. A risk of electric shock exists.

⚠WARNING: Safety Checkpoints

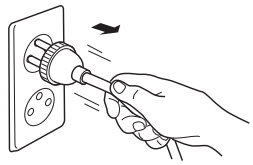
- Check the exterior and frame for edges, burrs, and other damages.
  The user or CE may be injured.

- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.
  They can short internal circuits and cause electric shock or fire.



- Check wiring for squeezing and any other damage.
  Current can leak, leading to a risk of electric shock or fire.

- When disconnecting connectors, grasp the connector, not the cable.
  (Specifically, connectors of the AC line and high-voltage parts)
  Current can leak, leading to a risk of electric shock or fire.



- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.
  Current can leak, leading to a risk of copier trouble or fire.

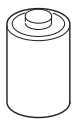
- Check high-voltage cables and sheaths for any damage.
  Current can leak, leading to a risk of electric shock or fire.

- Check electrode units such as a charging corona unit for deterioration and sign of leakage.
  Current can leak, leading to a risk of trouble or fire.

- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.
  The laser light can enter your eye, leading to a risk of loss of eyesight.

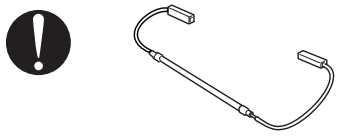
- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.
  The laser light can enter your eye, leading to a risk of loss of eyesight.

- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.
  Improper replacement can cause explosion.

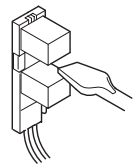


⚠WARNING: Safety Checkpoints

- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.
  A risk of fire exists.

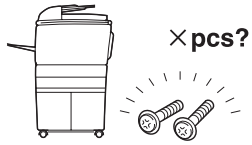


- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.
  If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).



- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.
  Current can leak, leading to a risk of electric shock or fire.

- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)
  A risk of copier trouble, electric shock, and fire exists.



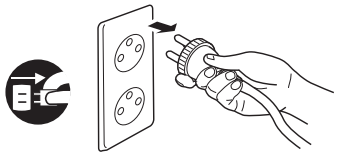
⚠DANGER: HANDLING OF SERVICE MATERIALS

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.
  If the substances get in the eye, rinse with plenty of water immediately. When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.
  You may be burned due to dust explosion.

⚠DANGER : HANDLING OF SERVICE MATERIALS

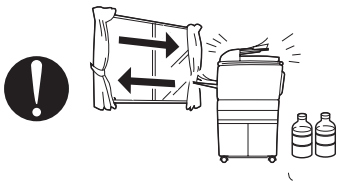
- Unplug the power cord from the wall outlet.
  Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.
  A risk of fire exists.

- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.
  A risk of fire exists.

- When using any solvent, ventilate the room well.
  Breathing large quantities of organic solvents can lead to discomfort.



[3] MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBT must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBT.
4. For reports and measures concerning serious accidents, follow the regulations given in “Serious Accident Report/Follow-up Procedures”.

[4] CONCLUSION

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION

IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a “Class 1” laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

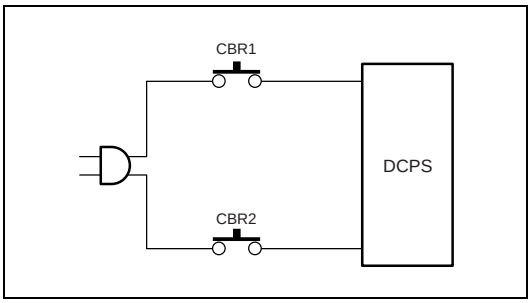
SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.

[1] Overall protection circuit
[2] L2 and L3 (fixing heater lamp/1, /2) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

[1] Overall protection circuit



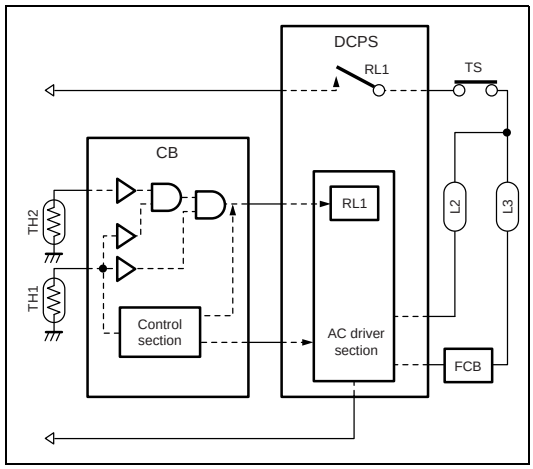
1. Protection by CBR1 and CBR2 (circuit breaker/1, /2)

CBR1 and CBR2 interrupt the AC line instantaneously when an excessive current flows due to a short in the AC line.

⚠**CAUTION:**

The CBR1 and CBR2 functions must not be deactivated under any circumstances.

[2] L2 and L3 (fixing heater lamp/1, /2) overheating prevention circuit



1. Protection by software

The output voltage from TH1, TH2 (fixing temperature sensor/1, /2) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp/1), L3 (fixing heater lamp/2) and RL1 (main relay) are turned OFF.

⚠**CAUTION:**

The RL1 function must not be deactivated under any circumstances.

2. Protection by the hardware circuit

The output voltages from TH1, TH2 (fixing temperature sensor/1, /2) are compared with the abnormality judgment reference value in the comparator circuit. If the output voltage from TH1 or TH2 exceeds the reference value, L2 (fixing heater lamp/1), L3 (fixing heater lamp/2) and RL1 (main relay) are turned OFF in hardware means.

⚠ **CAUTION:**

Periodically check the TH1, TH2 face contacting the roller, and replace TH2 if any abnormality is detected.

The RL1 function must not be deactivated under any circumstances.

3. Protection by TS (thermostat)

When the fixing heat roller exceeds the specified value, TSs (thermostats) are turned OFF, thus interrupting the power to L2 (fixing heater lamp/1), and L3 (fixing heater lamp/2) directly.

△2 ⚠ **CAUTION:**

Do not use any other electrical conductor in place of TS1 and TS2.

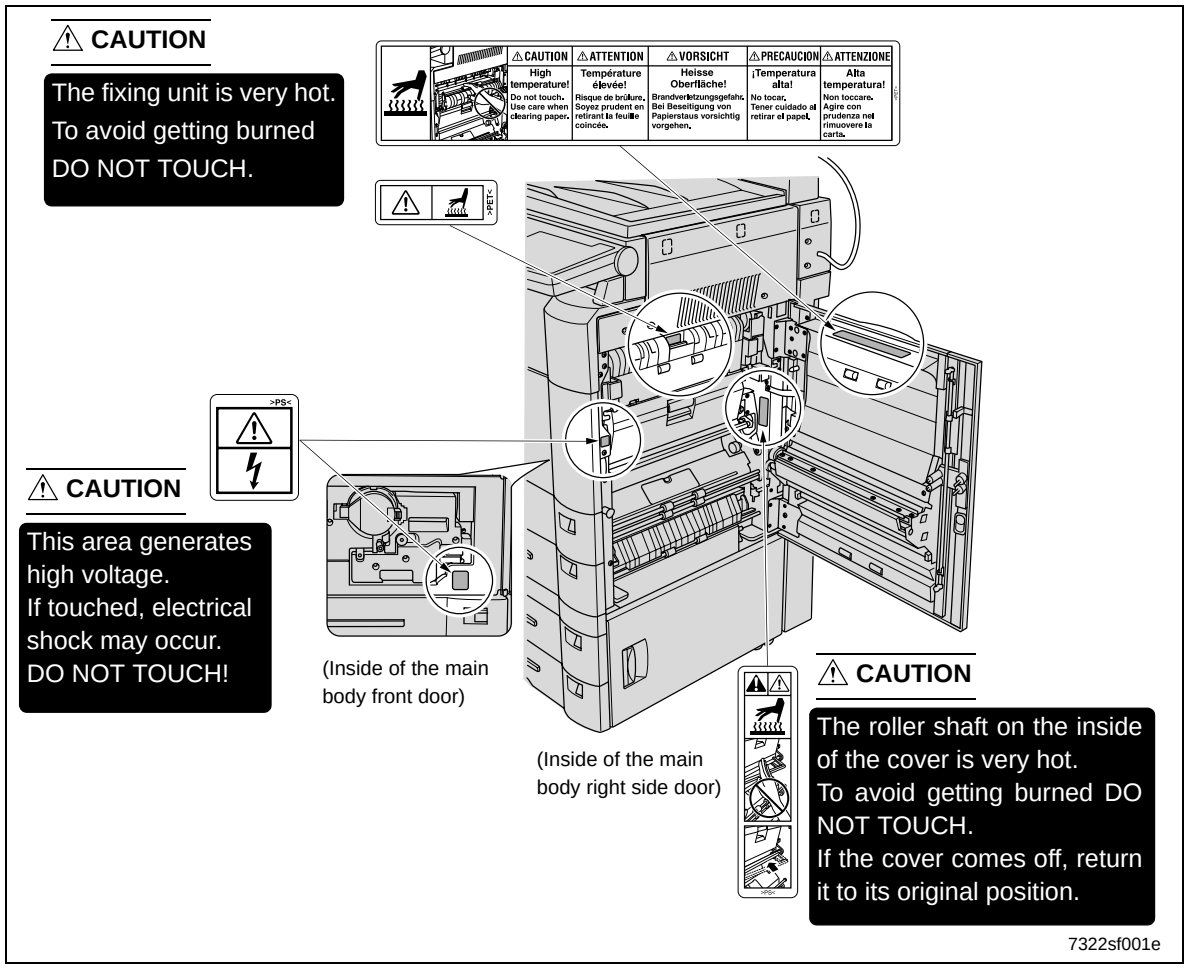
INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.

⚠2 [1] Main body

1. Right side

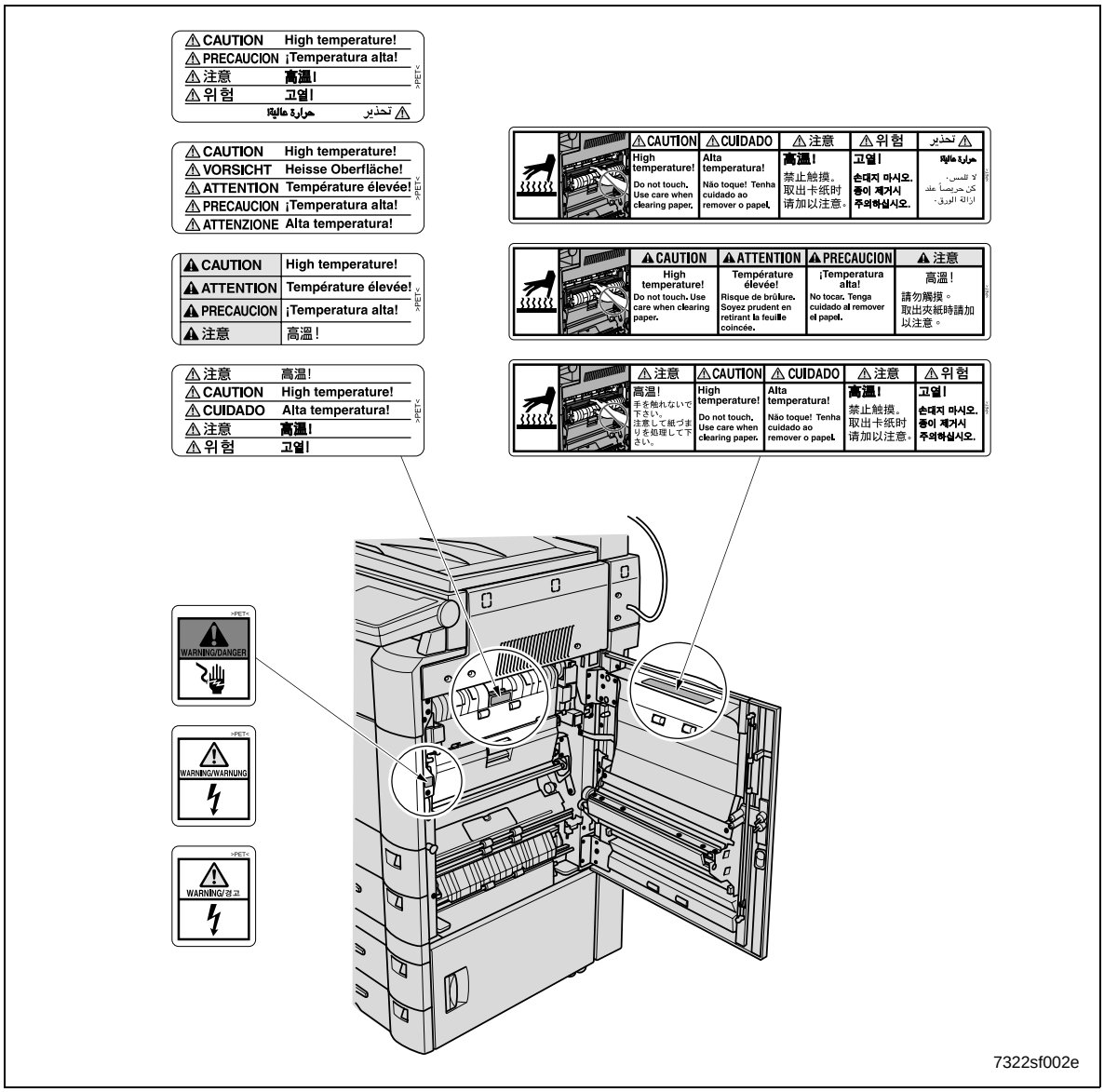
<7145>



⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

△2 <7235/7228/7222>



⚠CAUTION

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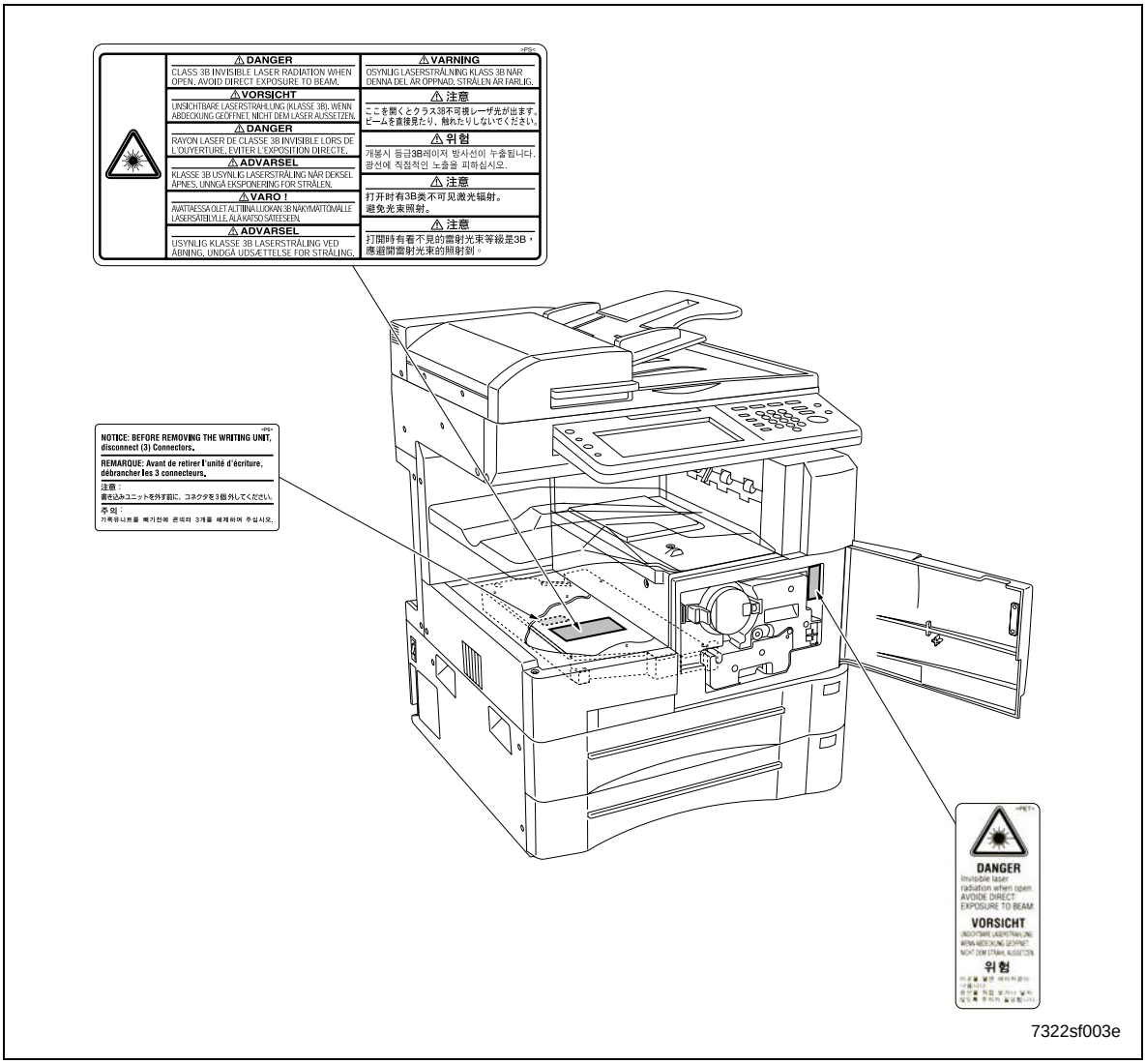
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

2. Front side

⚠2 <7145>



⚠CAUTION

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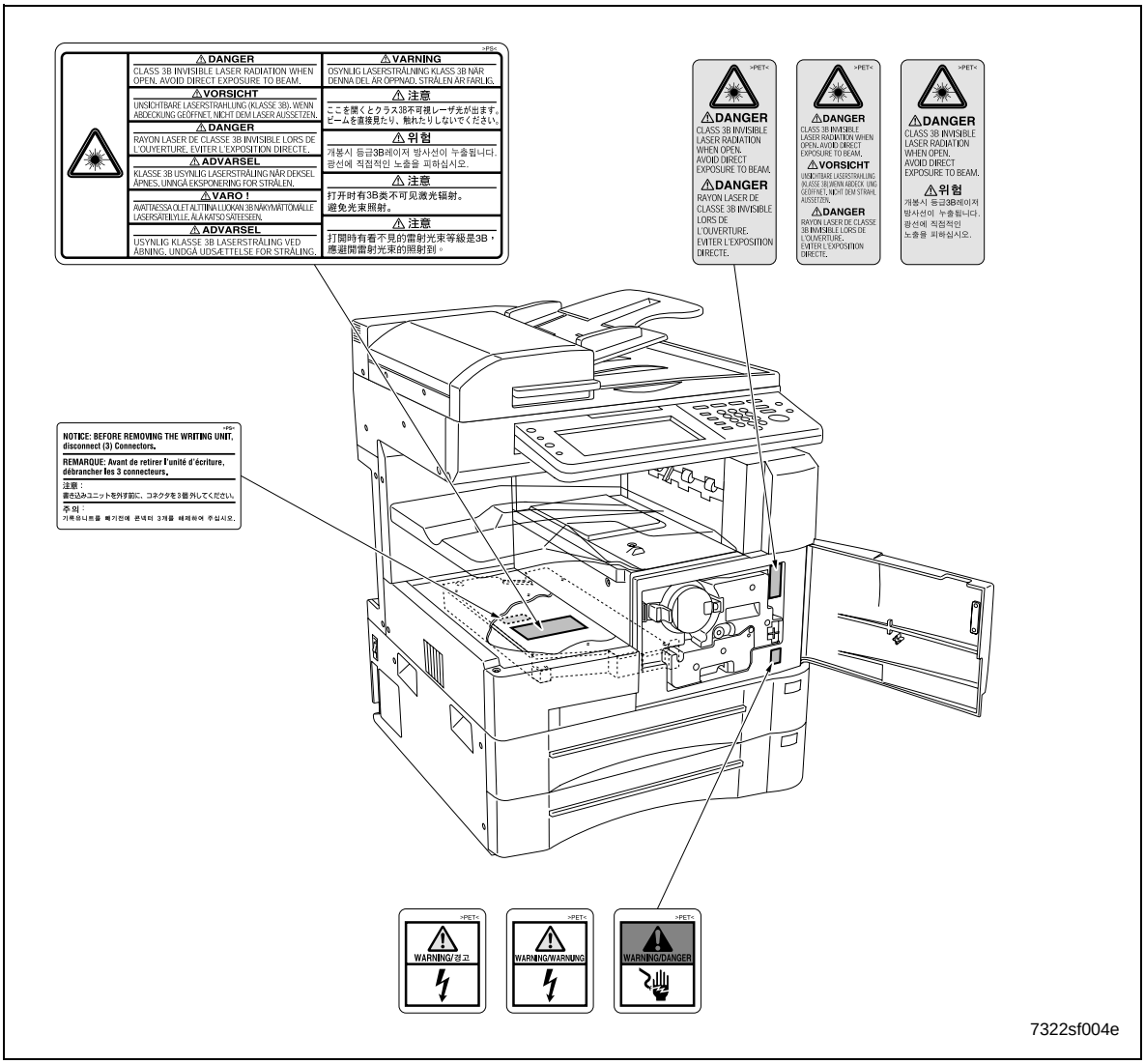
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

△2 <7235/7228/7222>



⚠CAUTION

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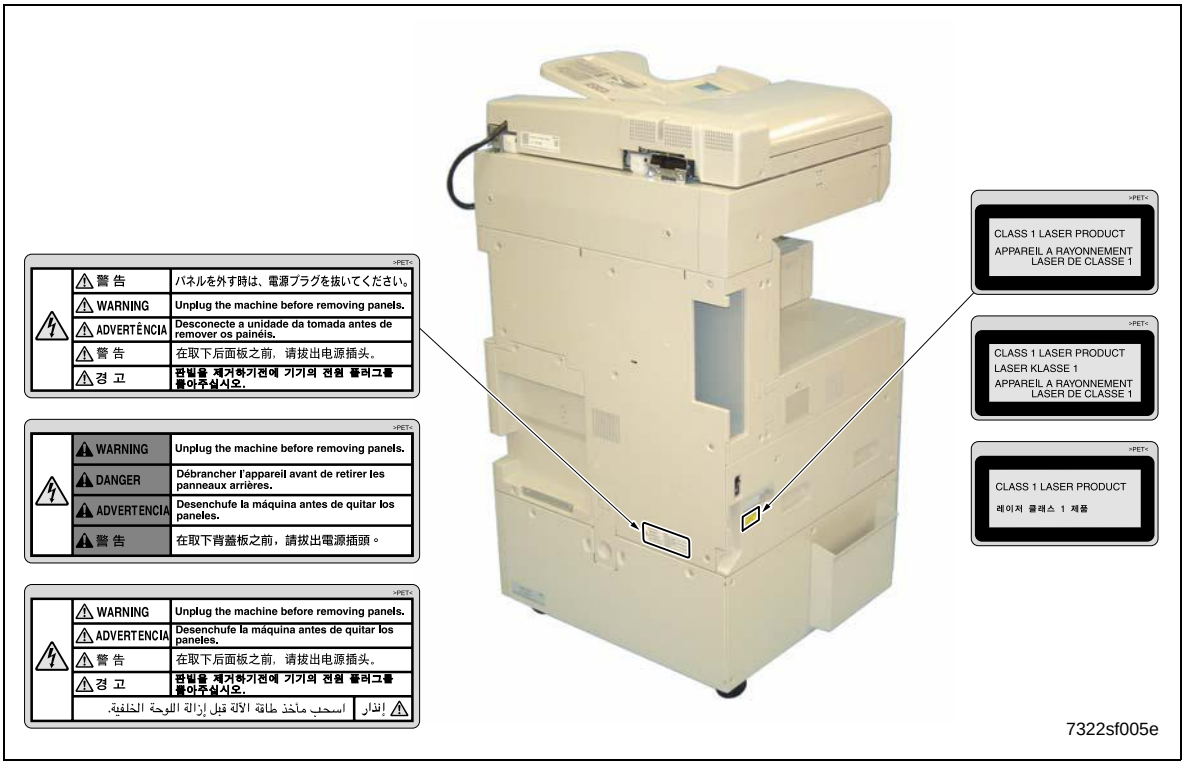
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

⚠2 3. Rear/Left side (7235/7228/7222 only)

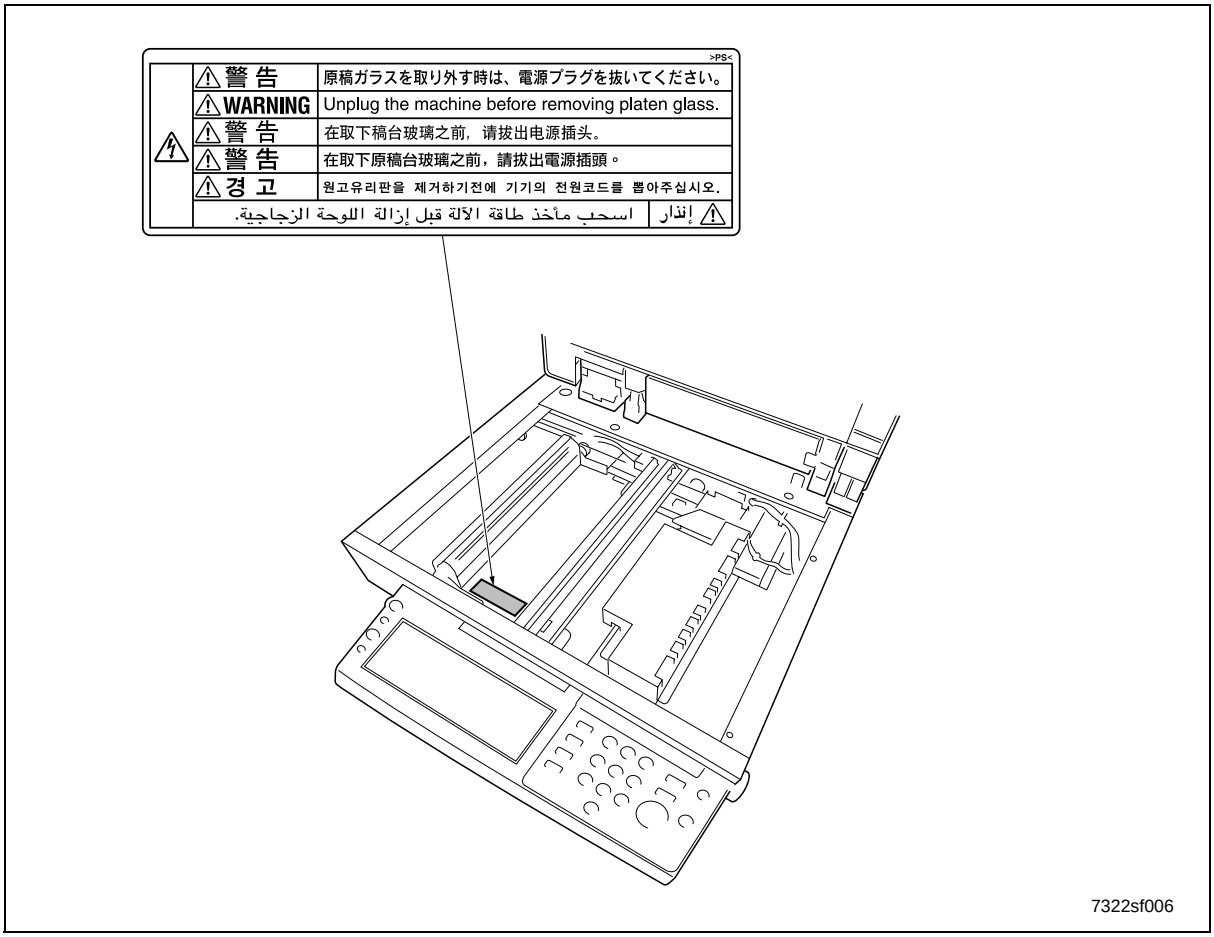


⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

4. Scanner section

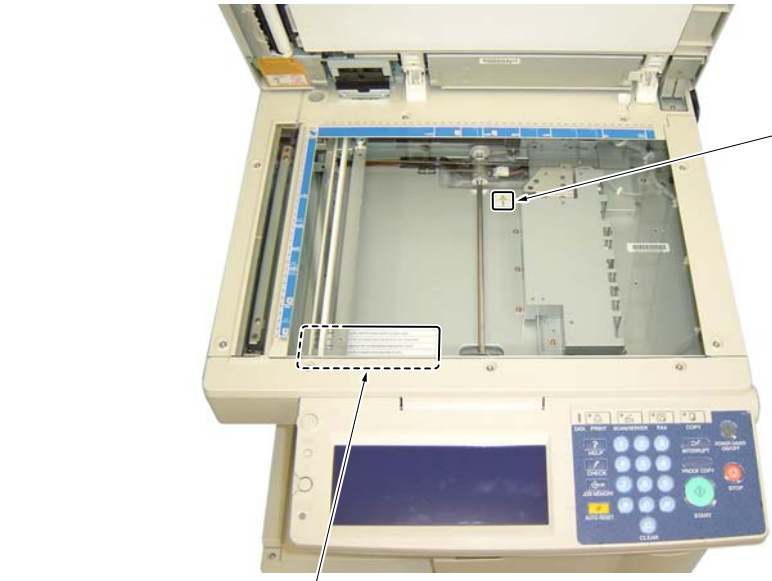
△2 <7145>



⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

⚠2 <7235/7228/7222>



⚠警 告	原稿ガラスを取り外す時は、電源プラグを抜いてください。
⚠WARNING	Unplug the machine before removing platen glass.
⚠ADVERTÊNCIA	Desconecte a unidade da tomada antes de remover o vidro de exposição.
⚠警 告	在取下稿台玻璃之前，请拔出电源插头。
⚠경 고	원고유리판을 제거하기전에 기기의 전원코드를 뽑아주십시오.

⚠WARNING	Unplug the machine before removing platen glass.
⚠DANGER	Débrancher le copieur avant de retirer la vitre d'exposition.
⚠ADVERTENCIA	Desenchufe la máquina antes de quitar el vidrio.
⚠警 告	在取下原稿台玻璃之前，請拔出電源插頭。

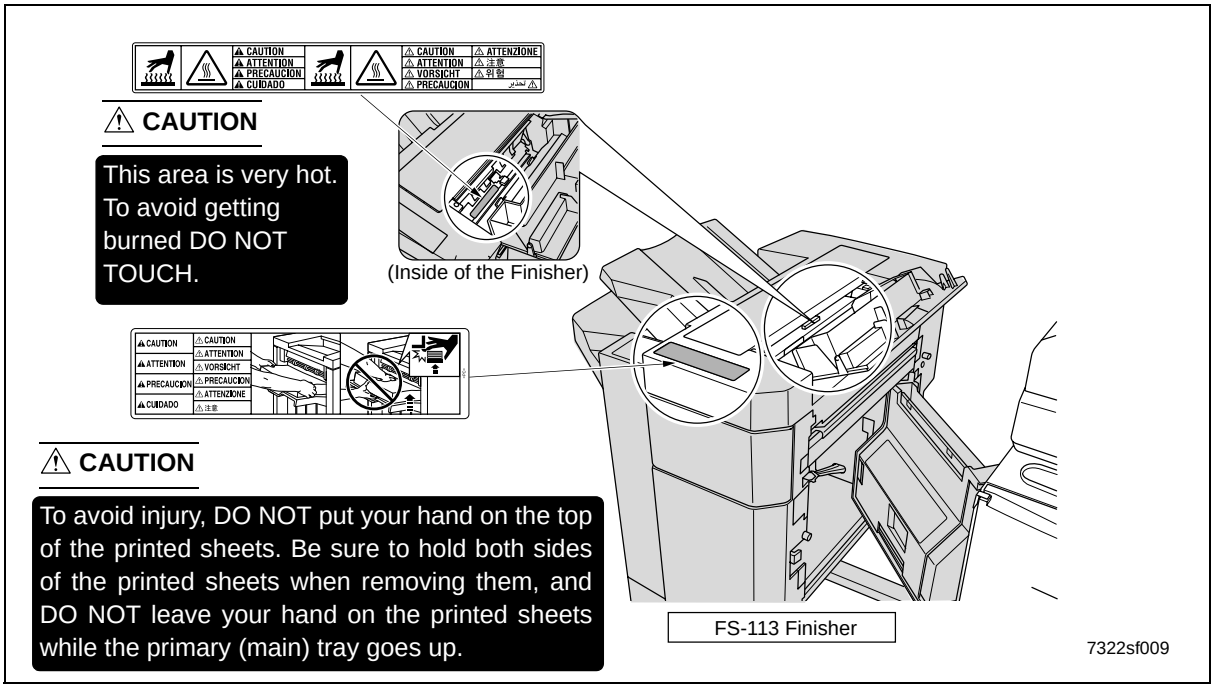
⚠WARNING	Unplug the machine before removing platen glass.
⚠ADVERTENCIA	Desenchufe la máquina antes de quitar el vidrio.
⚠警 告	在取下稿台玻璃之前，请拔出电源插头。
⚠경 고	원고유리판을 제거하기전에 기기의 전원코드를 뽑아주십시오.
⚠ إنذار	اسحب مأخذ طاقة الآلة قبل إزالة اللوحة الزجاجية.

7322sf007e

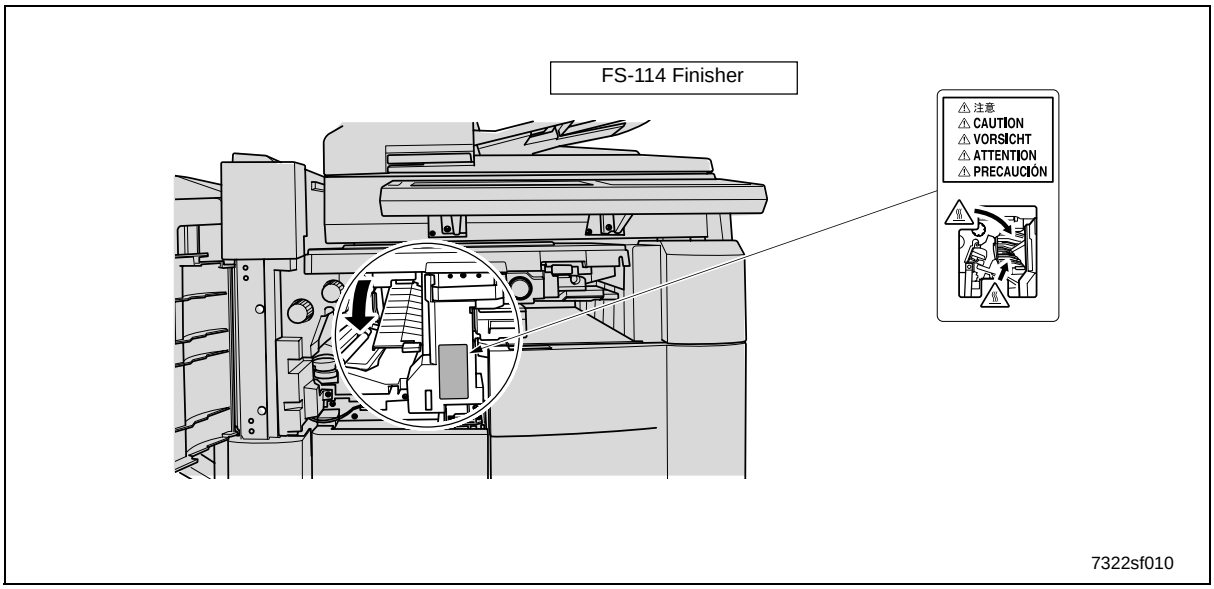
⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

⚠2 [2] FS-113



⚠2 [3] FS-114



⚠CAUTION

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Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

⚠2 List of major differences between the 7145, 7235, 7228 and 7222

Classification			7145	7235	7228	7222	Reason
Specifications	Warmup time		Less than 30 sec.	Less than 19 sec.			Change of specifications
	First copy out time (8.5x11)		Less than 3.8 sec.	Less than 4.3 sec.	Less than 4.9 sec.		
	Continuous copy speed (8.5x11)		45 sheets/min.	35 sheets/min.	28 sheets/min.	22 sheets/min.	
	Maximum E-RDH memory		320MB				
	DF		Standard	Optional			
	ADU		Standard				
	Paper exit tray		Optional	Standard			
	Machine dimensions (with DF and DB)		23.2in (W) x 23.4in (D) x 42.6in (H)	23.4in (W) x 25.8in (D) x 44.6in (H)			
	Maintenance		Once every 120,000 copies	Once every 100,000 copies			
	Materials	Developer	Exclusively for 7145	Exclusively for 7235/7228/7222			
		Toner	Exclusively for 7145	Exclusively for 7235 (Common to 7135)	Exclusively for 7228/7222 (Common to 7022/7120/7135)		
		Drum	Exclusively for 7145	Exclusively for 7235/7228/7222			
Drive section	Flywheel		f 103mm	f 132mm			
	Developing sleeve drive		Developing motor	Main motor			
	Vibration insulator		Not provided	Provided	Not provided		
Scanner section	Scanner drive board		Provided	Not provided			
Write section	Laser		2 beams	1 beam			
	Number of rotations of polygon motor		27,165rpm	38,976rpm	33,070rpm		Change of CPM
	Polygon cooling		Not provided	Provided	Not provided		Change of specifications

List of major differences between the 7145, 7235, 7228 and 7222

△2

Classification		7145	7235	7228	7222	Reason
Fixing section	Fixing unit	Exclusively for 7145	Exclusively for 7235/7228/7222			Change of specifications
ADU/Paper exit section	Decurler roller	Provided	Not provided			
	ADU drive board	Not provided	Provided			
Electrical parts	Developing motor	Provided	Not provided			
	ADU motor	Provided				
	Fixing cooling fan	Provided		Not provided		
	Internal cooling fan/2	Provided	Not provided			
	Polygon cooling fan	Not provided	Provided	Not provided		
	ADU gate solenoid	Provided				
	ADU sensor	Provided				
	Timing sensor/U	Provided			Not provided	
	Timing sensor/L	Provided			Not provided	
Control	Overall control	Exclusively for 7145	Exclusively for 7235	Exclusively for 7228	Exclusively for 7222	
	Image control					

⚠2 List of options corresponding to the 7145/7235/7228/7222

Optional		7145	7235	7228	7222
RADF	DF-318	Standard	Not corresponding		
	DF-320	Not corresponding	Corresponding		
Finisher	FS-112	Corresponding	Not corresponding		
	FT-107				
	FS-113	Corresponding			
	RU-101				
	FS-114				
	BK-114				
	PK-114				
	SK-114				
Paper exit tray	ET-101	Corresponding	Corresponding*1		
Inner tray	IT-101	Corresponding			
Desk	DK-110	Not corresponding	Corresponding		
DB	DB-211	Corresponding			
	DB-411				
LCT	LT-203				
ADU	AD-307	Standard			
Post script	PS-344	Corresponding	Not corresponding		
	PS-346	Not corresponding	Corresponding		
Printer controller	IP-432	Corresponding	Not corresponding		
	IP-424	Not corresponding	Corresponding		
FAX controll board	FK-102 Type-A	Corresponding	Not corresponding		
	FK-103	Not corresponding	Corresponding		
2 lines expansion kit	FL-102	Corresponding	Not corresponding		
	FL-103	Not corresponding	Corresponding		
Hard disk	HD-103 Type-A	Corresponding			
Total counter		Standard	Corresponding		
Key counter		Corresponding			

*1 A paper exit tray is provided as standard equipment that is different from ET-101. When ET-101 is provided, it is integrated into the main body as seen from the point of design.

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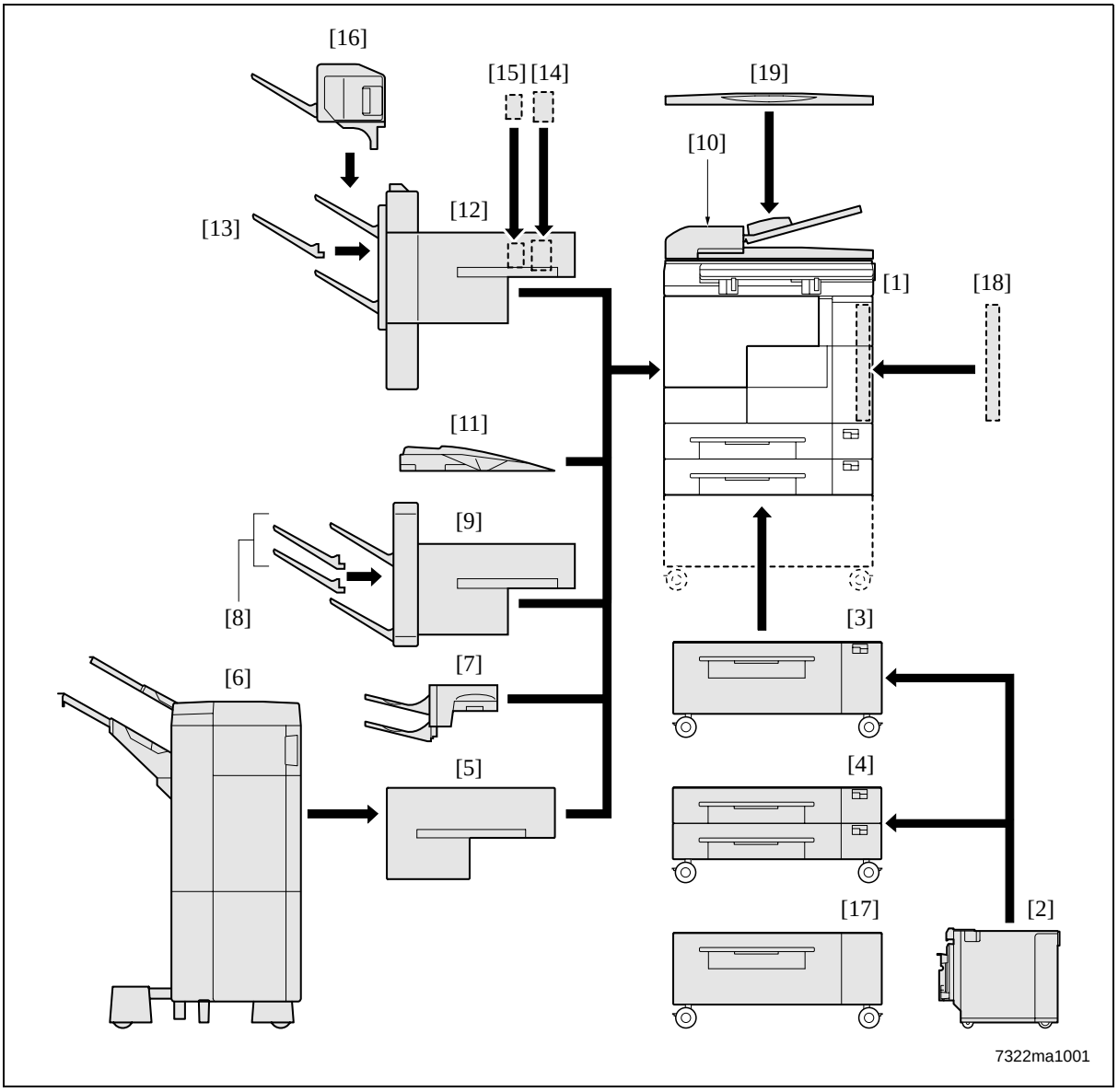
I OUTLINE

1. OUTLINE OF SYSTEM

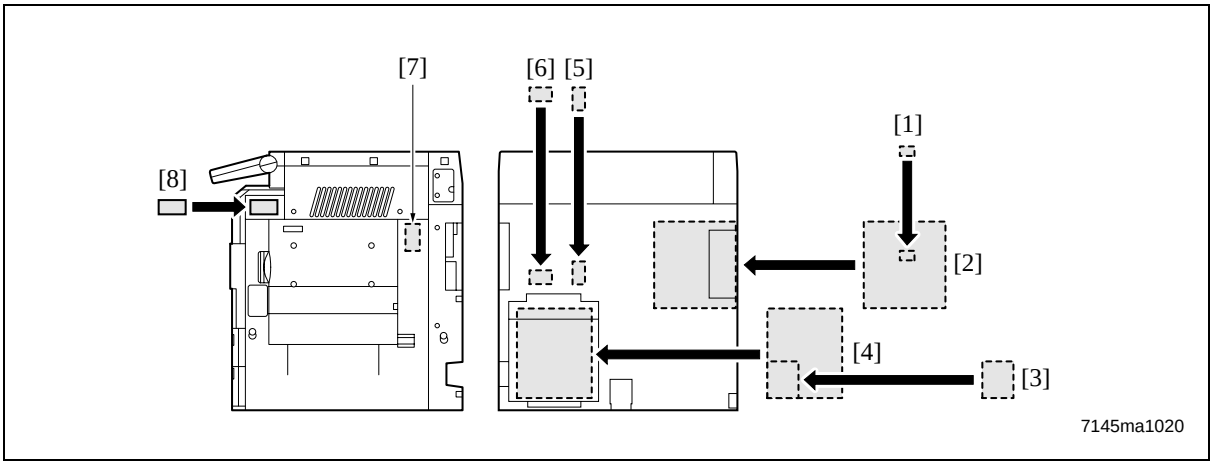
△2



[1] Main body
[2] LCT (LT-203)
[3] LCT DB (DB-411)
[4] 2-Tray DB (DB-211)
[5] Conveyance unit (RU-101)
[6] Finisher (FS-113)
[7] Inner tray (IT-101)
[8] Finisher tray (FT-107: FS-112)
[9] Finisher (FS-112: 7145 only)
[10] RADF (DF-318: 7145 provided as a standard equipment)
(DF-320: 7235/7228/7222)
[11] Paper exit tray (ET-101)*1
[12] Finisher (FS-114)
[13] Additional tray (BK-114)
[14] Punch kit (PK-114)
[15] Crease unit (included in SK-114)
[16] Saddle unit (SK-114)
[17] Desk (DK-110: 7235/7228/7222 only)
[18] ADU (provided as a standard equipment)
[19] Platen cover (CV-109: 7235/7228/7222 only)

*1 As a standard equipment, the 7235/7228/7222 are provided with a paper exit tray that is different from the one with which the ET-101 is equipped.

△2



[1] Postscript (PS-344: 7145)
(PS-346: 7235/7228/7222)
[2] Printer controller (IP-432: 7145)
(IP-424: 7235/7228/7222)
[3] 2 line expansion kit (shipments only to the United States and Oceania)
(FL-102:FK-102 Type-A)
(FL-103:FK-103)
[4] Fax control board(FK-102 Type-A: 7145)
(FK-103: 7235/7228/7222)
[5] E-RDH expansion memory (MU-404: 64MB/MU-405: 128MB)
[6] Hard disk (HD-103 Type-A)
[7] Total counter
(7145 provided as standard equipment)
(In the case of the 7235/7228/7222, shipments only to the United States are provided with the total counter.)
[8] Key counter
[9] Expansion memory for the printer controller
(Not displayed here. For details, see the Service Manual of the controller.)

2. PRODUCT SPECIFICATIONS

A. Type

⚠2	Type:	Semi-console type (7145) Desk-top type (7235/7228/7222)
	Copying method:	Indirect electrostatic method
	Original table:	Fixed
	Original alignment:	Left rear standard
	Photosensitive material:	OPC
	Sensitizing method:	Laser writing
	Paper feed trays:	Two trays (500 sheets x 2, 80g/m^2 or 20lbs) Multisheet bypass tray (50 sheets, 80g/m^2) DB-211 (500 sheets x 2, 80g/m^2 or 20lbs) *1 DB-411 (1500 sheets, 80g/m^2 or 20lbs) *1 LT-203 (2000 sheets, 80g/m^2 or 20lbs) *1

*1 Optional

B. Functions

Original:	Sheet, book, solid object (Thickness: up to 1.2in. Weight: up to 15lbs)
Maximum original size:	A3, or 11 x 17
Copy size (for metric area):	
Tray 1:	B4, A4, A4R, B5, B5R, A5R, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, F4
Tray 2:	A3, B4, A4, A4R, B5, B5R, A5R, 11 x 17, 8.5 x 11, 8.5 x 11R, F4
Bypass tray:	A3, B4, A4, A4R, B5, B5R, A5R, B6R, 8.5 x 11R (7145 only), 8.5 x 11 (except the 7145), F4 (except the 7145)
ADU:	A3, B4, A4, A4R, B5, B5R, A5R, 11 x 17, 8.5 x 11, 8.5 x 11R, 8.5 x 14, 5.5 x 8.5R, F4
Copy size (for inch area):	
Tray 1:	8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, F4, B4R (7145 only), A4, A4R, B5, A5R
Tray 2:	11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, F4, A3, A4, A4R, A5R
Bypass tray:	11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, A4
ADU:	11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, A3, B4 (7145 only), A4, A4R, B5, A5R, F4
Magnification:	
Fixed magnification (for metric area):	x 1.00, x 1.41, x 1.22, x 1.15, x 0.86, x 0.82, x 0.71
Fixed magnification (for inch area):	x 1.00, x 2.00, x 1.55, x 1.29, x 0.77, x 0.65, x 0.50
Special ratio:	Three kinds
Zoom magnification:	x 0.25 to x 4.00 (at 1% step)
Vertical magnification:	x 0.25 to x 4.00 (at 1% step)
Horizontal magnification:	x 0.25 to x 4.00 (at 1% step)

⚠2	Warm-up time: (at temperature of 68°F, at rated voltage)	Less than 30 sec. (7145) Less than 19 sec. (7235/7228/7222)
⚠2	First copy out time:	Less than 3.8 sec. (7145) Less than 4.3 sec. (7235) Less than 4.9 sec. (7228/7222) * platen mode, manual density, life size, tray 1, paper exit with face down, A4 or 8.5 x 11
⚠2	Continuous copy speed: (A4 or 8.5 x 11, in memory copy)	45 copies/min. (7145) 35 copies/min. (7235) 28 copies/min. (7228) 22 copies/min. (7222)
	Continuous copy count:	Up to 999
	No. of sheets loadable on the paper exit tray:	Up to 100 (8.5x11)
	Copy density selection:	AE, manual (9 steps), arbitrary density (2 modes)
	Resolution:	
	Scan:	600 dpi x 600 dpi
⚠2	Write:	600 dpi x 600 dpi
	ERDH memory *1:	Standard 64MB, Maximum 320MB
⚠2	Interface section:	Serial port (USB TypeB), Serial port (RS-232C), RJ45 Ethernet connector, Parallel port (IEEE1284 (Compatible, Nible, ECP))
	Network section:	Ethernet frame type: IEEE 802.3/802.3/Ethernet II/ IEEE 802.3 SNAP
		Connecting type: 10 Base-T/100 Base-TX
⚠2		Corresponding protocol: TCP/IP (BOOTP, ARP, ICMP, DHCP, SNMP, HTTP, SMTP, POP3, FTP, IPP), IPX/SPX, AppleTalk (EtherTalk),
⚠2		Corresponding OS: Novell NetWare (3.x, 4.x, 5.x), Microsoft Windows 95/98/Me, Microsoft Windows NT4.0/2000/XP, Mac OS8.x and later, Mac OS10.2.5
		Multi-protocol: Automatic discrimination
		Corresponding printing method: Peer-to-Peer (TCP/IP), LPD/LPR (TCP/IP), PServer (IPX/SPX), RPrinter (IPX, SPX), AppleTalk (EtherTalk)
		General purpose utility: Web browser (Internet Explorer, Netscape Navigator)
		Status indicator LED: Green LED and orange LED, one for each

*1 Since the standard 64MB memory is packaged on the board, it is not possible to replace it with a new one.
Only one slot is provided for expansion. It can be installed with MU-404 (64MB), MU-405 (128MB), or 256MB (commercially available).
For 256MB (commercially available), be sure to use those of make and model No. specified separately.

Number of originals to be stored: More than 140 sheets under the following conditions:

Original:	Konica standard chart
Density:	Manual 5
Mode:	Character/photograph
Memory capacity:	64MB (provided only as standard)
Job:	Job in mode with page memory not used

C. Copy Paper

⚠2	Plain paper:	60g/m^2 or 17lbs to 105g/m^2 or 28lbs, high-quality paper
	Special paper *1	Label paper, OHP film, blueprint-master paper, 50g/m^2 or 13lbs to 59g/m^2 or 16lbs high-quality paper (thin), 106g/m^2 or 28lbs to 130g/m^2 or 35lbs high-quality paper (thick1), 131g/m^2 or 35lbs to 160g/m^2 or 43lbs high-quality paper (thick2 *2)

*1 With bypass feed method, paper should be fed one sheet at a time. Double sided copy not allowed.

*2 Only bypass feed.

D. Machine Data

	Power source:	230VAC –14% to 10.6% 50Hz/60Hz
		120VAC –14% to 6% 60Hz
	Power consumption:	Maximum 1500W or less (fully optional)
	Weight:	Approximately 183lbs (with DF provided)
⚠2	Dimensions:	7145: 23.2in (W) x 23.4in (D) x 42.6in (H) (with DF + DB)
		7235/7228/7222: 23.4in (W) x 25.8in (D) x 44.6in (H) (with DF + DB)

⚠2 E. Maintenance

Maintenance:	Once every 120,000 copies (7145)
	Once every 100,000 copies (7235/7228/7222)

⚠2 F. Consumables

Developer:	Exclusively for 7145
	Exclusively for 7235/7228/7222
Toner:	Exclusively for 7145
	Exclusively for 7235 (Common to 7135)
	Exclusively for 7228/7222 (Common to 7022/7120/7130)
Drum:	Exclusively for 7145 (ϕ 60)
	Exclusively for 7235/7228/7222 (ϕ 60)

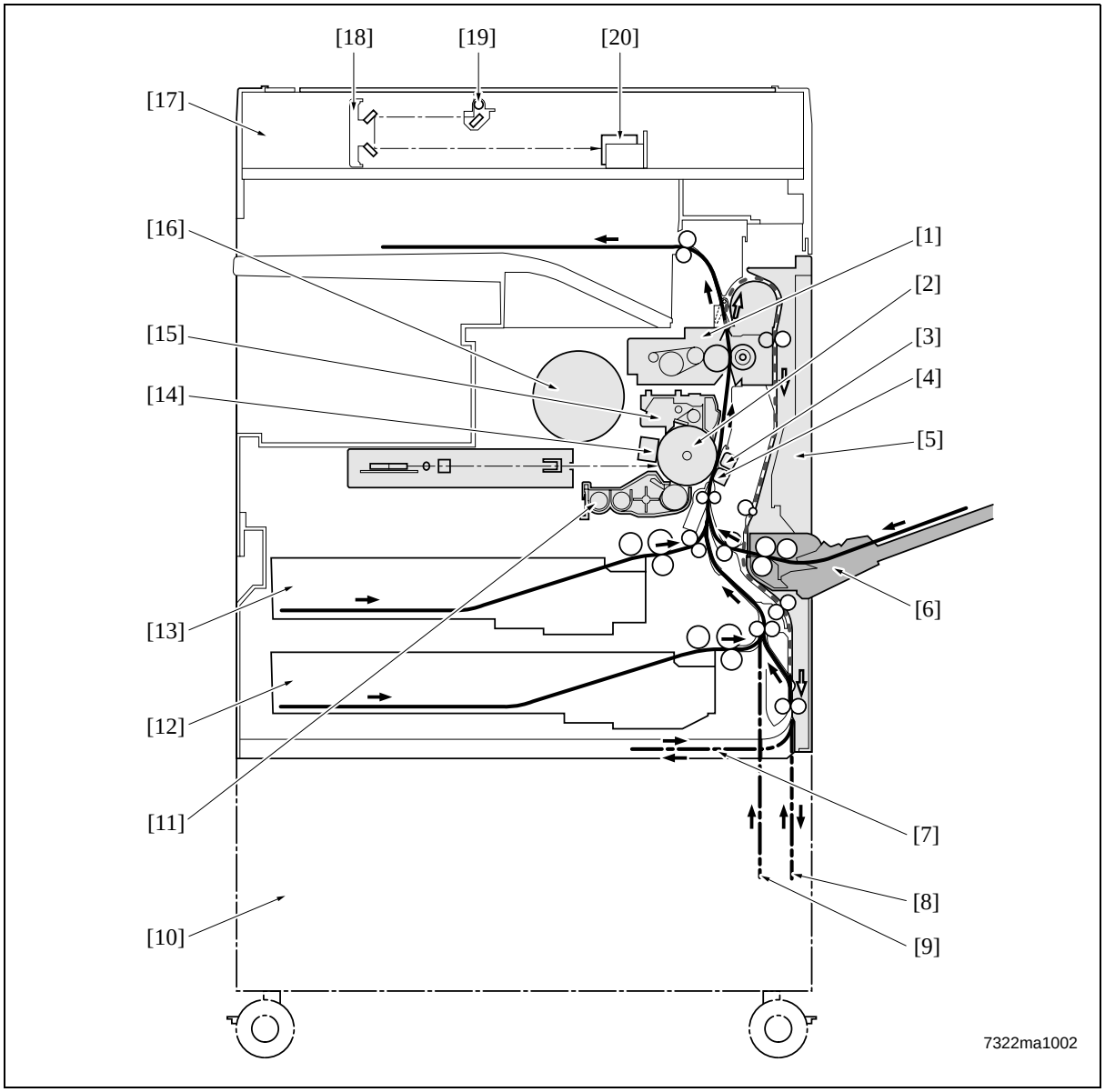
G. Operating Environment

Temperature:	10°C to 30°C (50°F to 86°F)
Humidity:	10% RH to 80% RH

Note:

- The information herein may be subject to change for improvement without notice.

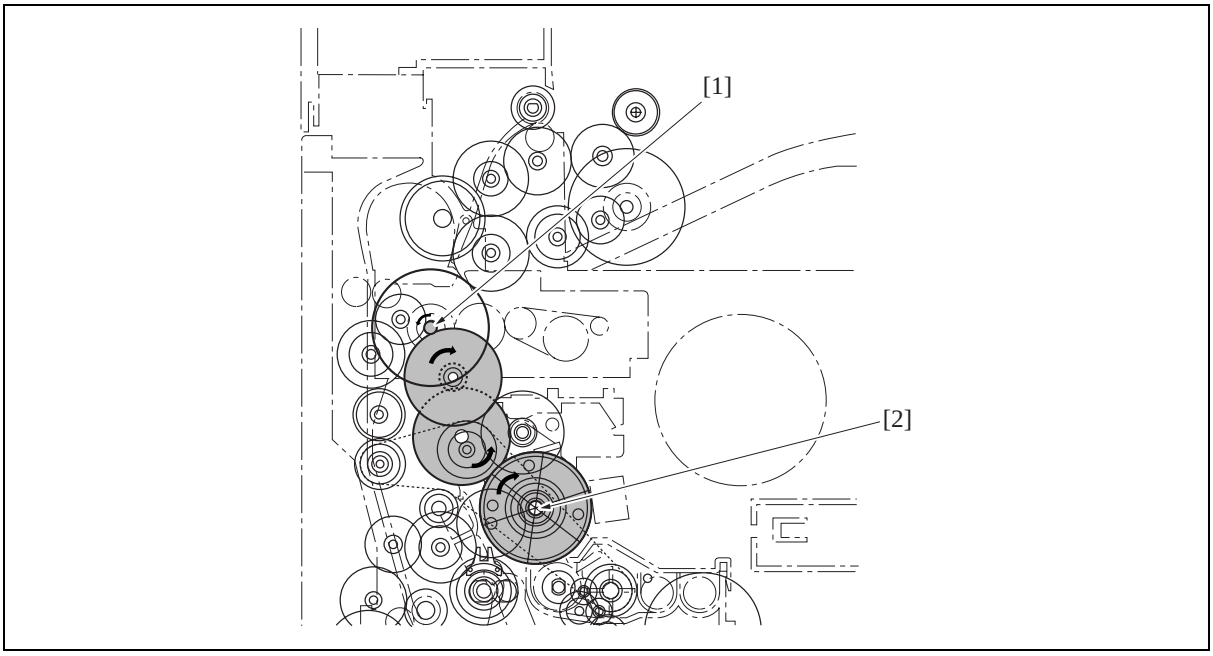
△2 3. CENTER CROSS SECTION



[1] Fixing unit
[2] Drum unit
[3] Separation corona unit
[4] Transfer corona unit
[5] ADU unit
[6] Bypass tray
△2 [7] Paper feed path for making a double-sided copy (DB unprovided)
[8] Paper feed path for making a double-sided copy (DB provided)
[9] DB paper feed path
[10] DB
[11] Developing unit
[12] Tray 2
[13] Tray 1
[14] Charging corona unit
[15] Cleaning/toner recycling unit
[16] Toner bottle
[17] Scanner unit
[18] V-mirror unit
[19] Exposure unit
[20] CCD unit

4. DRIVE SYSTEM DIAGRAM

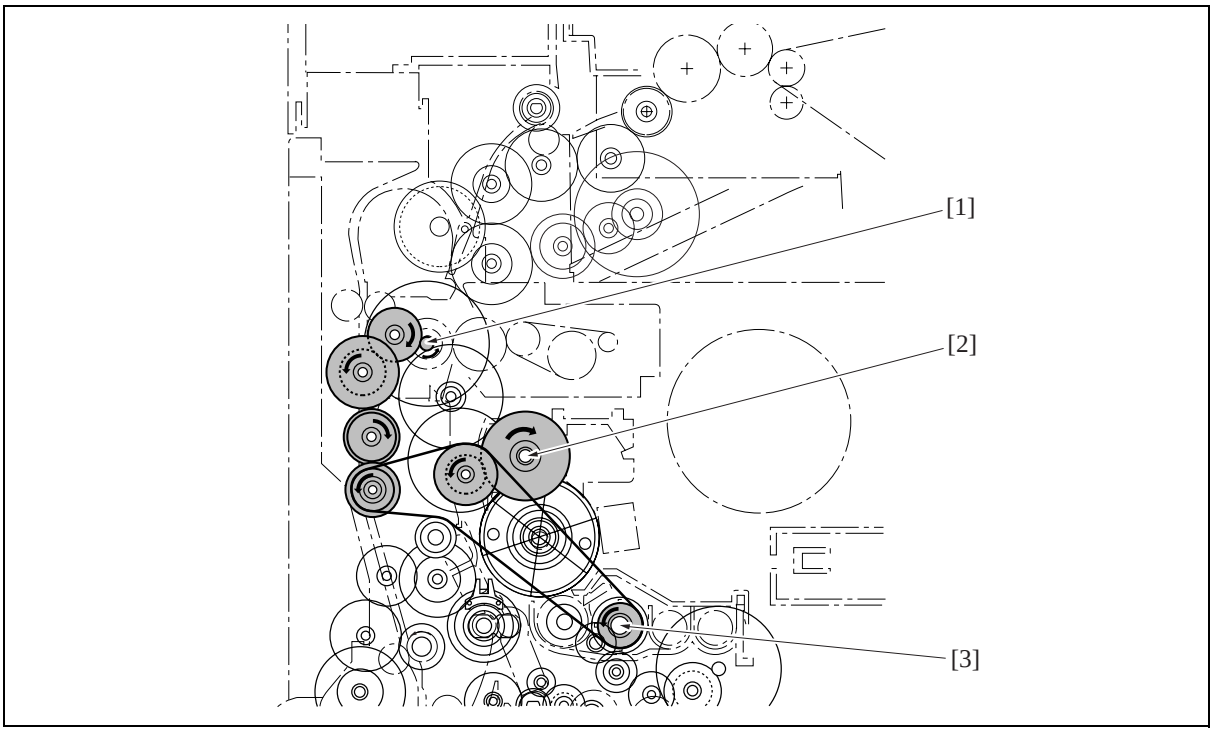
4.1 Drum Drive



[1] M1 (Main motor)

[2] Drum drive shaft

4.2 Cleaning/Developer Agitation Drive

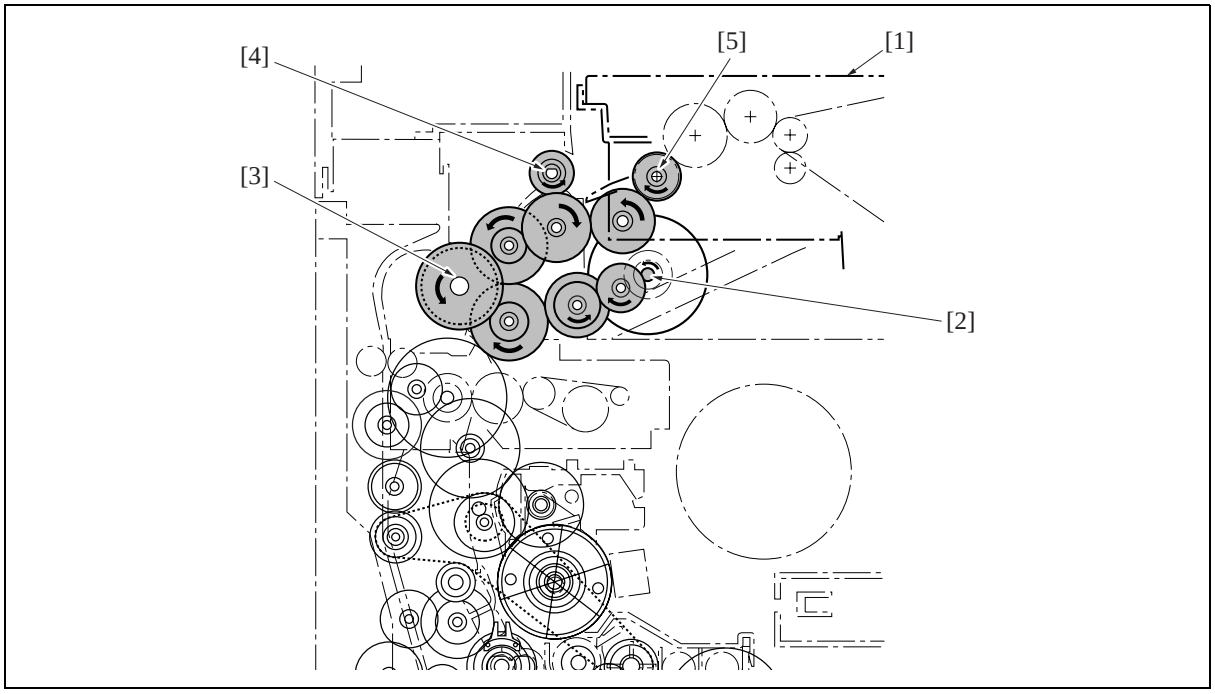


[1] M1 (Main motor)

[2] Cleaning/toner recycling unit drive

[3] Developer agitation drive

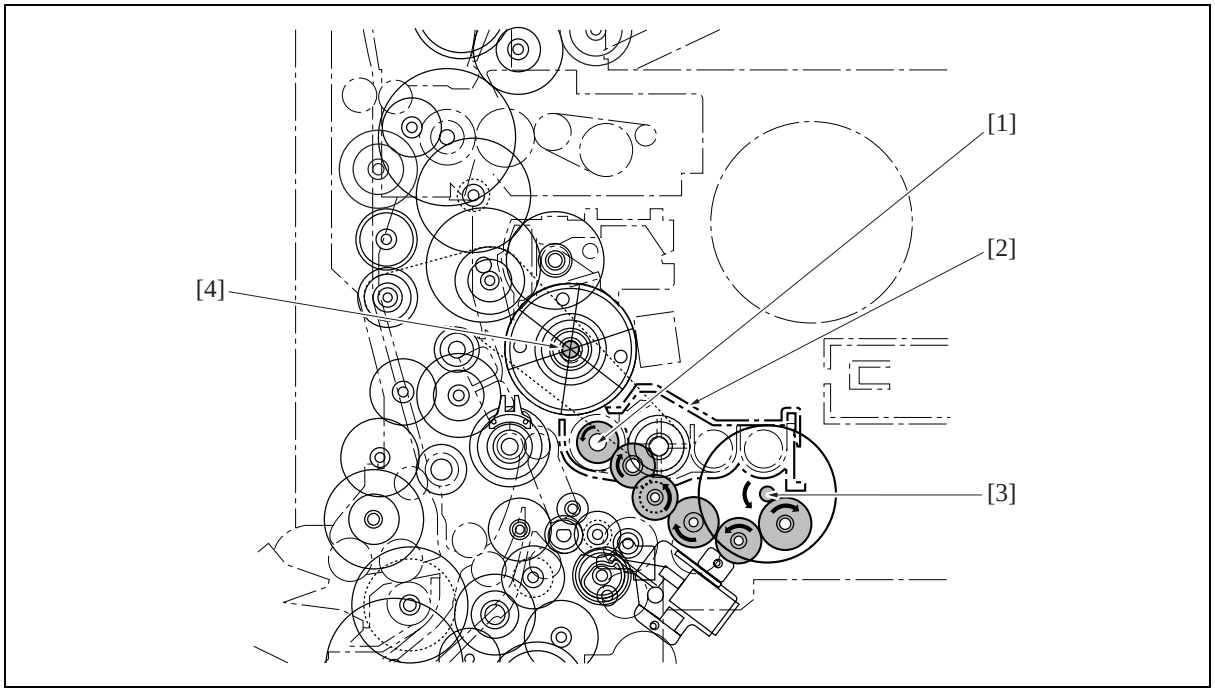
4.3 Fixing/Paper Exit Section/IT-101/RU-101 Drive



[1] IT-101
[2] M11 (Fixing motor)
[3] Fixing unit drive
[4] Paper exit drive
[5] Drive coupling for IT-101 and RU-101

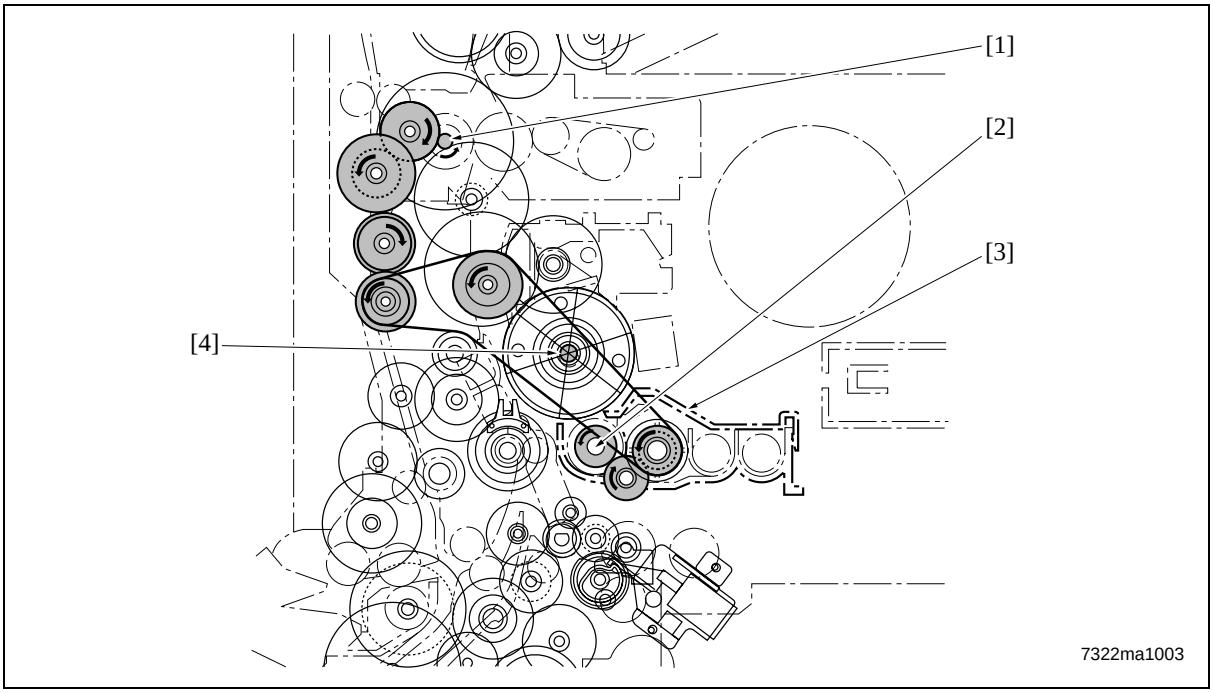
⚠2 4.4 Developing Drive

In the case of the 7145



[1] Developing sleeve
[2] Developing unit
[3] M3 (Developing motor)
[4] Drum drive shaft

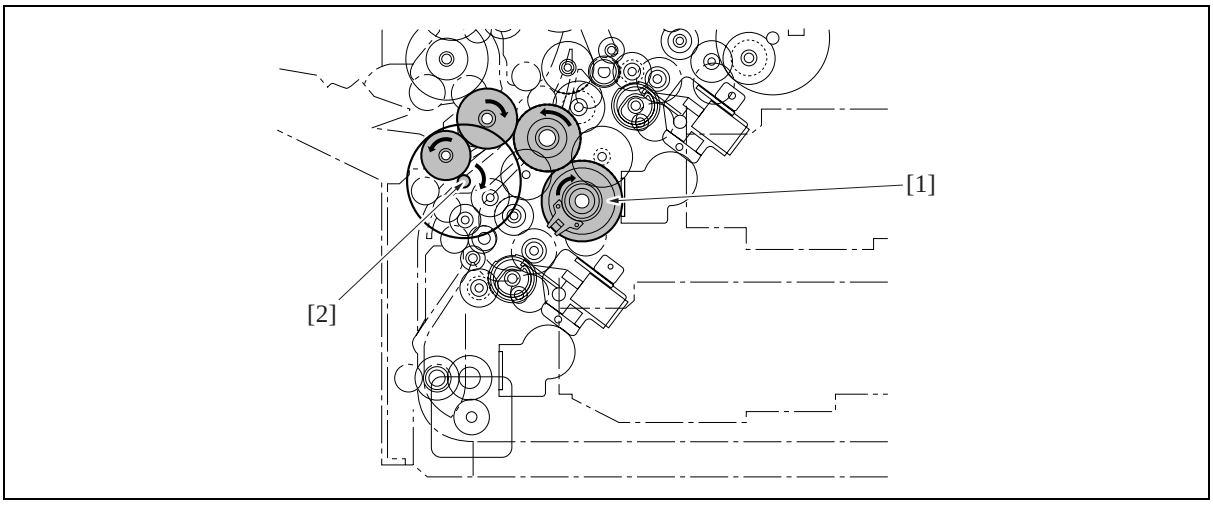
△2 In the case of the 7235/7228/7222



[1] M1 (Main motor)
[2] Developing sleeve
[3] Developing unit
[4] Drum drive shaft

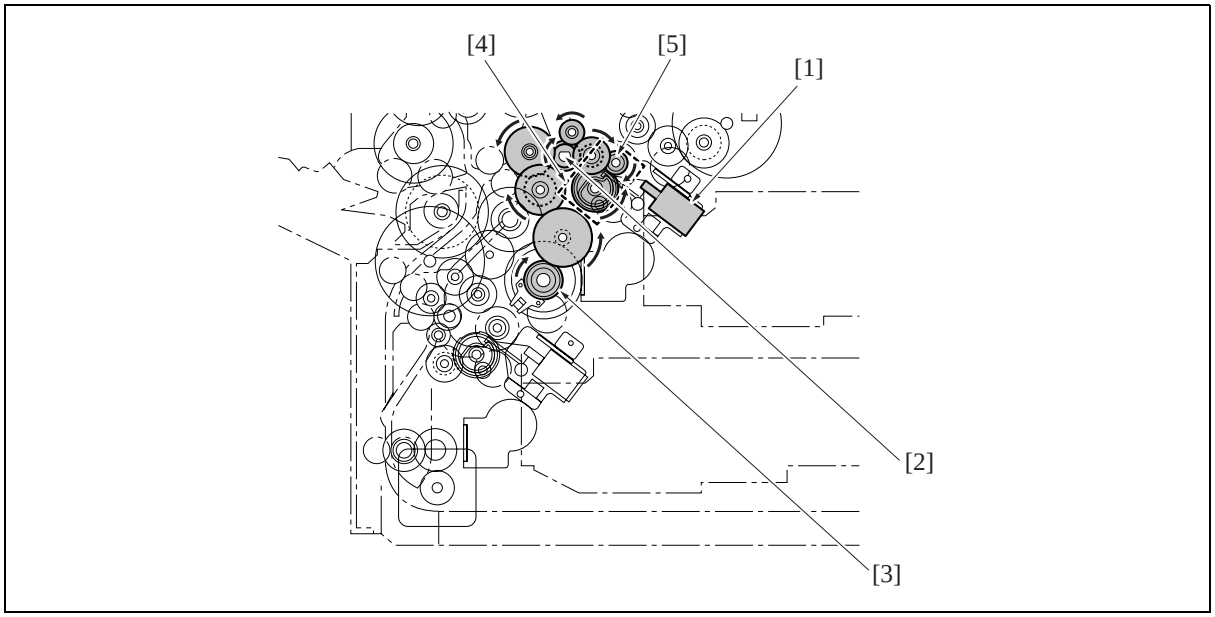
4.5 Paper Feed Drive

4.5.1 Drive from paper feed motor to loop clutch



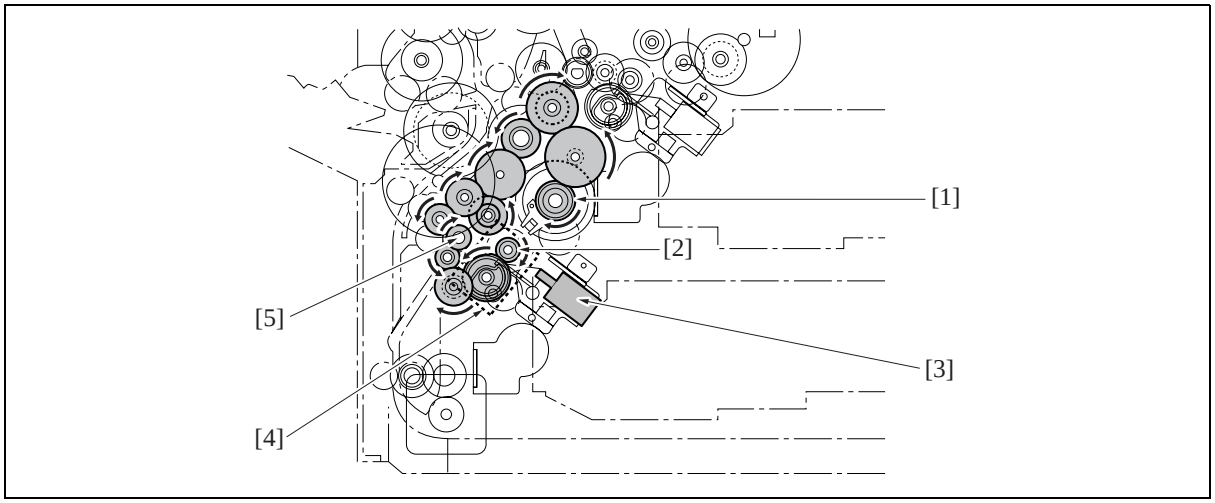
[1] MC2 (Loop clutch)
[2] M9 (Paper feed motor)

4.5.2 Tray 1 drive



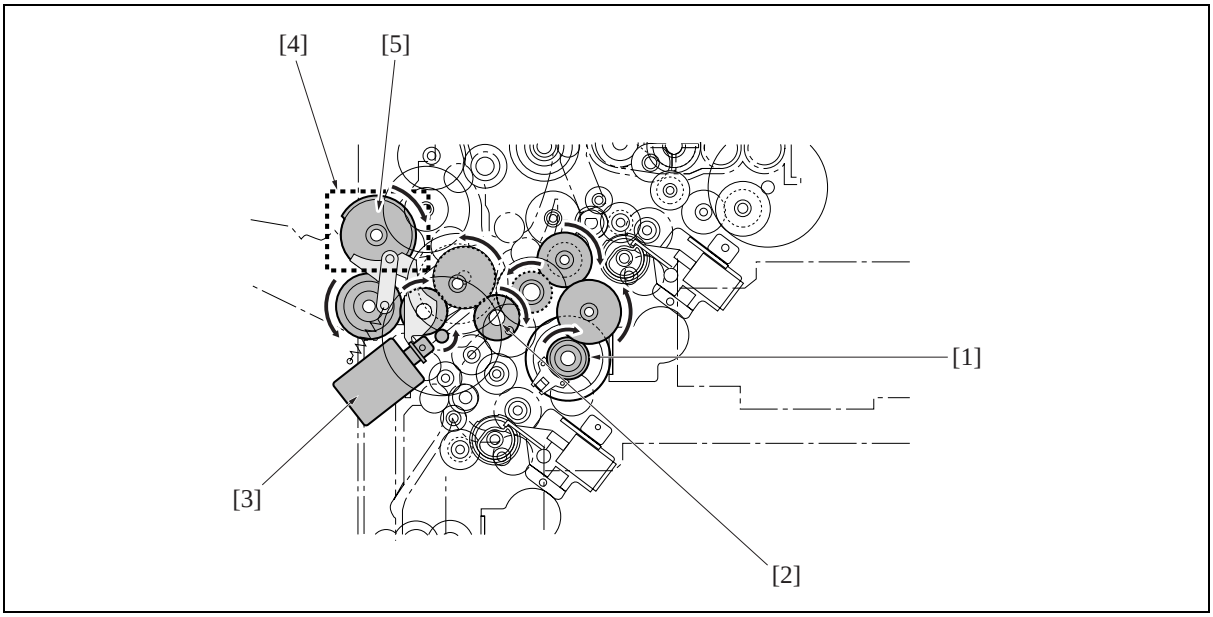
[1] SD1 (1st paper feed solenoid/U)
[2] Conveyance roller
[3] MC2 (Loop clutch)
[4] Driven when SD1 (1st paper feed solenoid/U) is on.
[5] Feed roller

4.5.3 Tray 2 drive



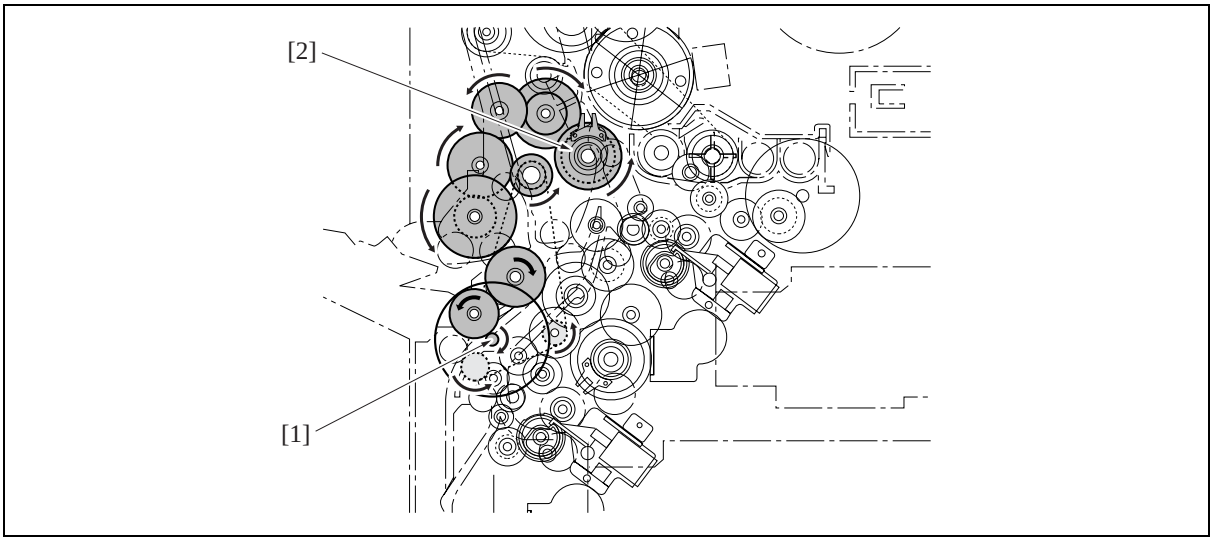
[1] MC2 (Loop clutch)
[2] Feed roller
[3] SD2 (1st paper feed solenoid/L)
[4] Driven when SD2 (1st paper feed solenoid/L) is on.
[5] Conveyance roller

4.5.4 Bypass feed drive



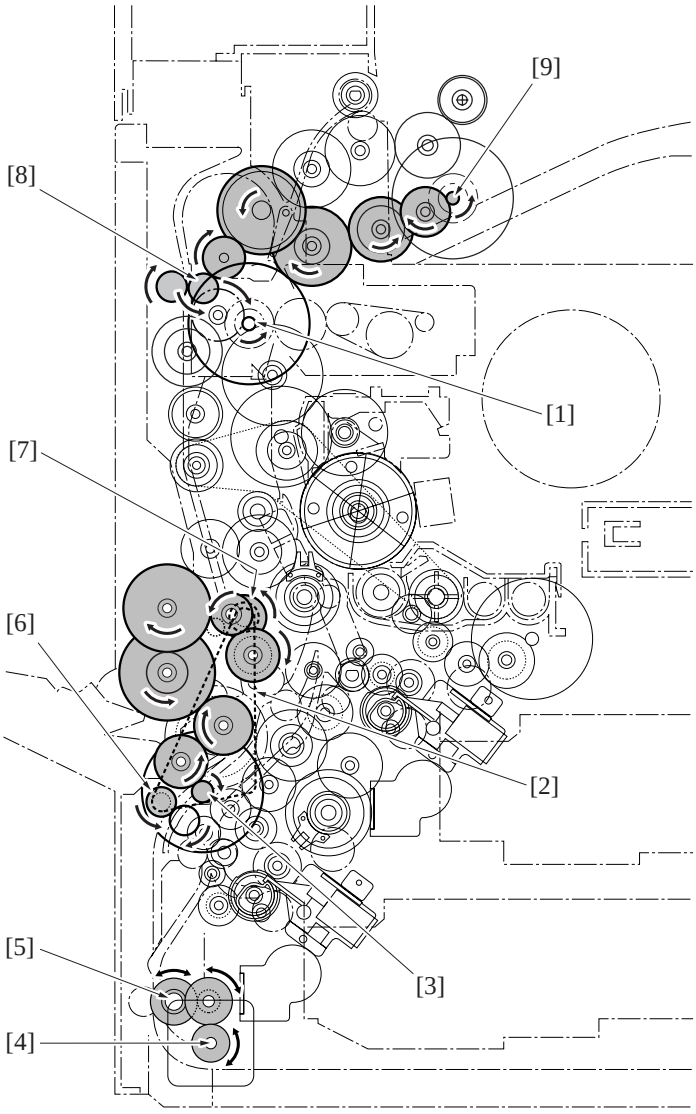
[1] MC2 (Loop clutch)
[2] Conveyance roller
[3] SD3 (Bypass solenoid)
[4] Driven when SD3 (Bypass solenoid) is on.
[5] Paper feed roller

4.5.5 Registration clutch drive



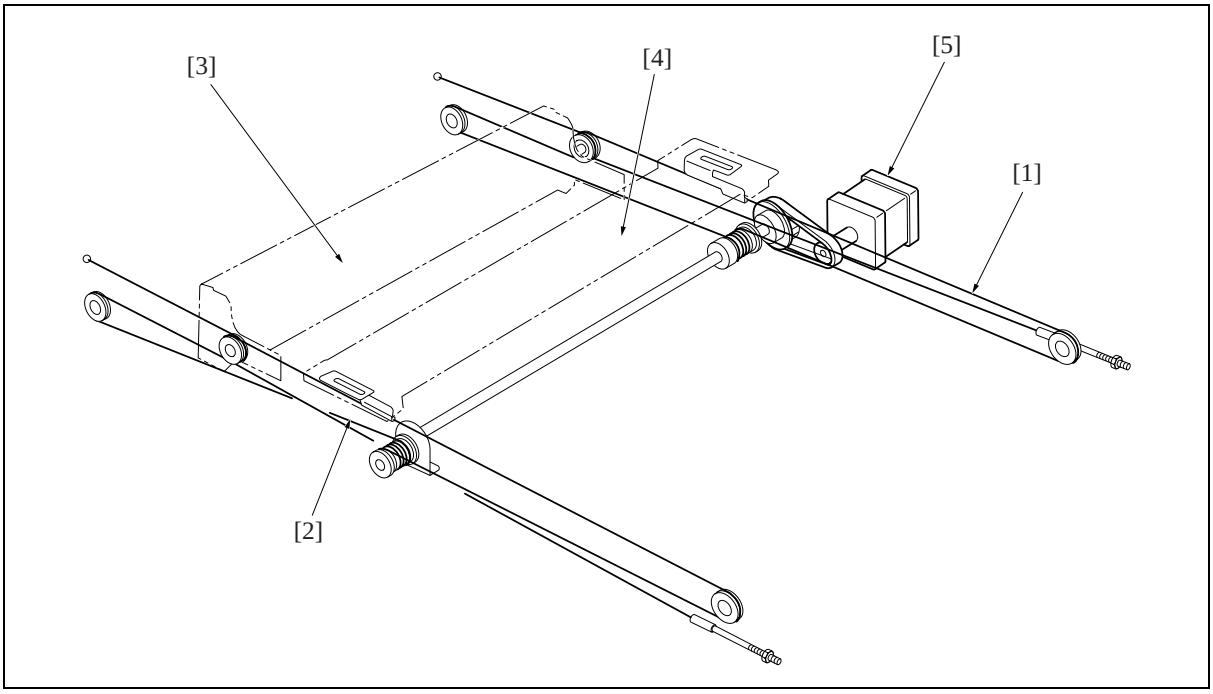
[1] M9 (Paper feed motor)
[2] MC1 (Registration clutch)

4.6 ADU Drive



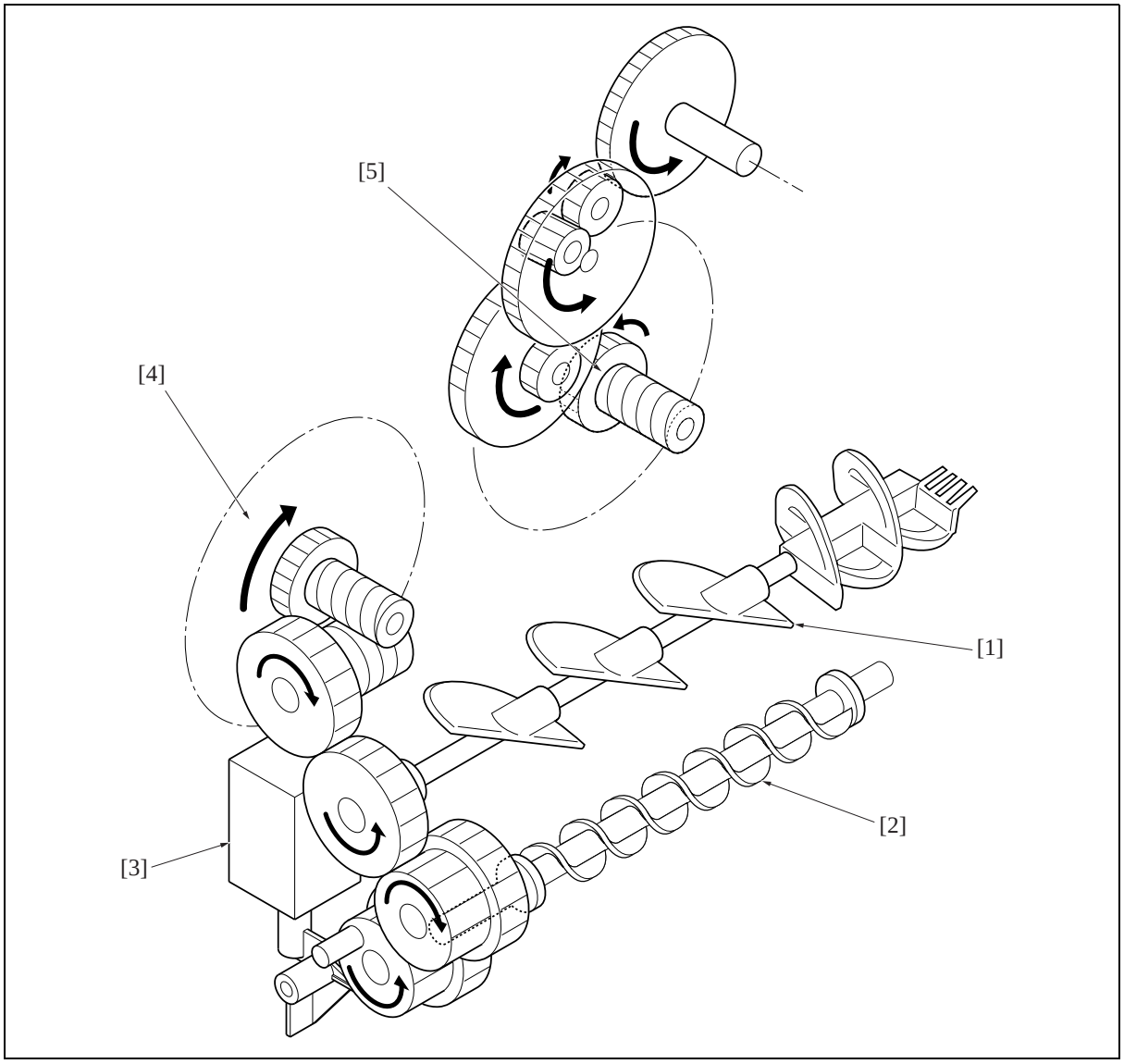
[1] M1 (Main motor)
[2] Timing belt
[3] M9 (Paper feed motor)
[4] M6 (ADU motor)
[5] ADU roller
[6] ADU conveyance roller/2
[7] Decurler roller
[8] ADU conveyance roller/1
[9] M11 (Fixing motor)

4.7 Scanner Drive



[1] Optical wire/R
[2] Optical wire/F
[3] V-mirror unit
[4] Exposure unit
[5] M2 (Scanner motor)

4.8 Toner Supply Drive



[1] Toner agitation plate
[2] Toner conveyance screw
[3] SD9 (Toner solenoid)
[4] M4 (Toner supply motor 1)
[5] M10 (Toner supply motor 2)

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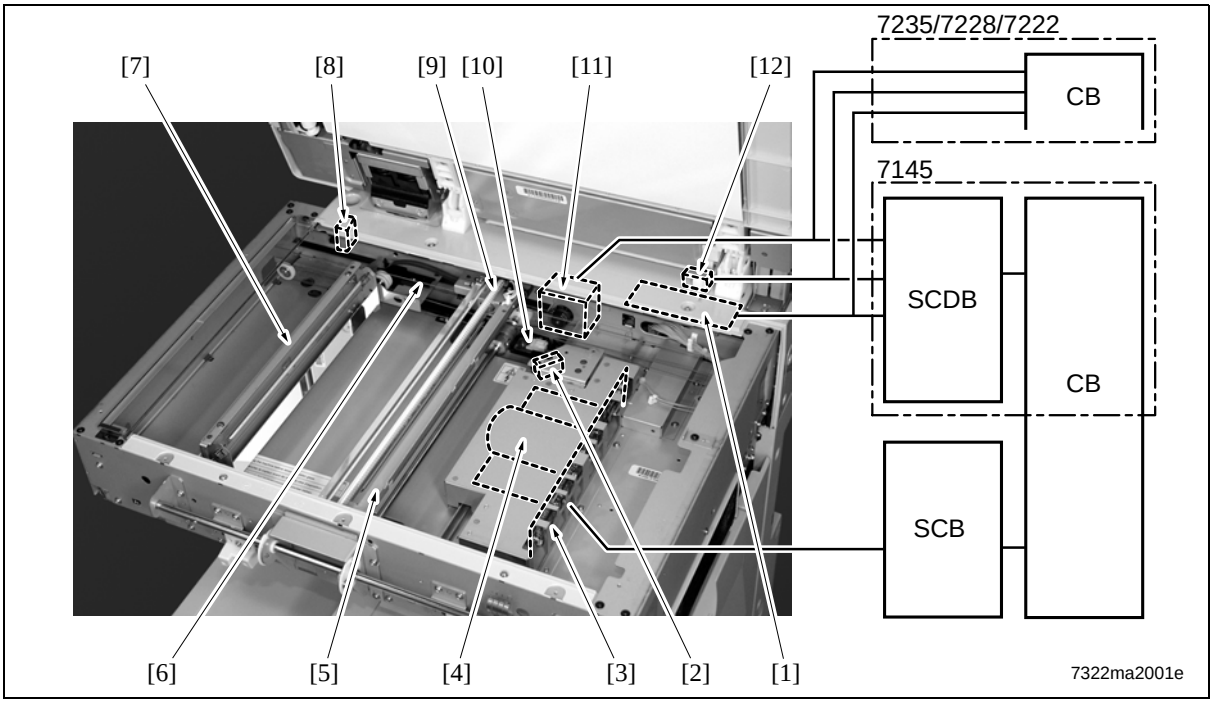
II UNIT EXPLANATION

1. SCANNER SECTION

1.1 Composition

△2



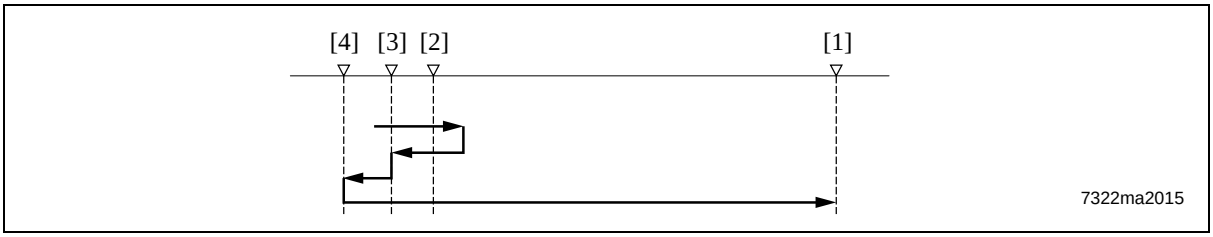
Symbol	Name	Function or method
[1]	INV1 (Exposure lamp inverter)	L1 (Exposure lamp) turn on
[2]	PS17 (APS sensor)	Detection of original size in the direction of sub-scanning
[3]	ADB (A/D converter board)	Digital conversion of analog signal
[4]	CCD unit	Photoelectric conversion of read image (600dpi)
△2 [5]	Exposure unit	Image reading Light source slit exposure Scan speed • Forward: 230mm/sec. (in 1:1 magnification) • Backward: 383mm/sec.
[6]	Optical wire	Transmission of driving force from M2 to the exposure unit and the V-mirror unit (front and rear)
[7]	V-mirror unit	Reflection of reading light (2nd and 3rd mirrors)
[8]	PS14 (Scanner HP sensor)	Exposure unit HP detection
[9]	L1 (Exposure lamp)	Light source for reading image, Xenon lamp
[10]	L1INVB (Power supply board for exposure lamp)	Relay board for INV1 (Exposure lamp inverter) and L1 (Exposure lamp)
[11]	M2 (Scanner motor)	Driving of the optical wire used to move the exposure unit and the V-mirror unit Three-phase step motor
[12]	PS15 (APS timing sensor)	RADF open/close detection

1.2 Operation

1.2.1 Initial operation when power is turned on and shading correction reading

When the SW2 (Sub power switch) comes on, the exposure unit starts a home position search. At this time, the exposure unit uses the white reference plate attached on the back side of the original pressing board for shading correction. However, two places on the white reference plate are read for correction. The search procedure differs depending on whether the PS14 (Scanner HP sensor) is on or off while the SW2 is on.

△2 **A. Home position search when the PS14 is turned on**



[1] Exposure unit standby position
[2] PS14
[3] Shading correction position 1
[4] Shading correction position 2

△2 **B. Home position search when PS14 is turned off**

[1] Exposure unit standby position
[2] PS14
[3] Shading correction position 1
[4] Shading correction position 2

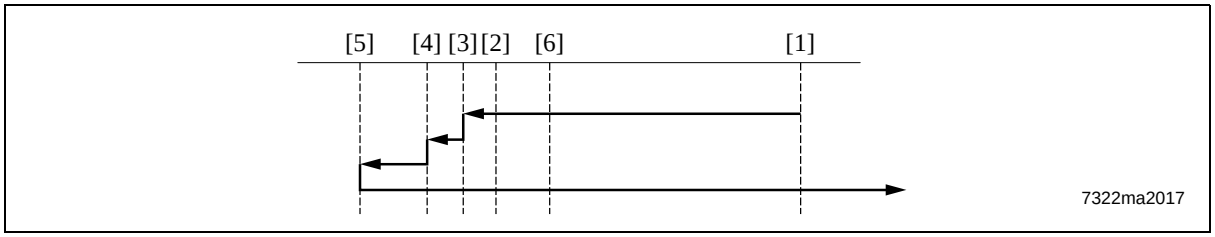
1.2.2 Original reading mode

The following two modes are available for original reading; platen mode and DF mode. In platen mode, the exposure unit moves as necessary to scan the original for reading. In DF mode, the RADF side moves the original while the exposure unit stays fixed in a specified position (DF reading position).

A. Exposure unit movement in platen mode

In platen mode, the scan sequence depends on the copy density selection (either AE or manual).

△2 **(1) In manual density copy:**

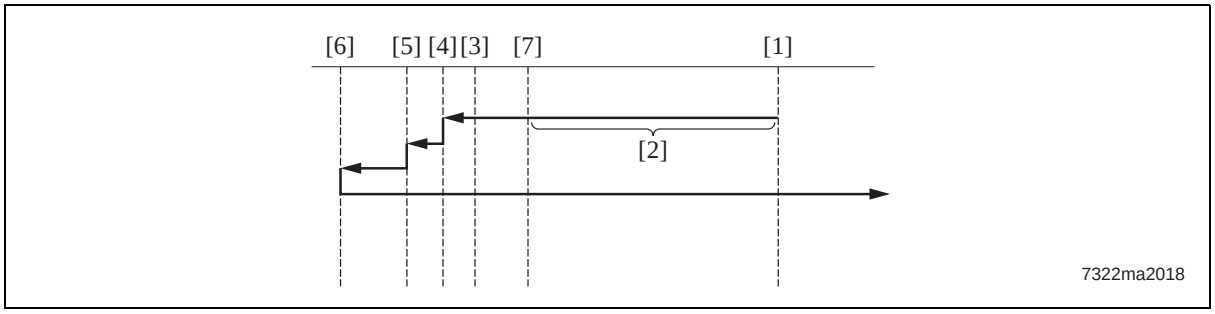


[1] Exposure unit standby position
[2] PS14
[3] Shading correction position 1
[4] Shading correction position 2
[5] Position at which the approach run of the exposure unit is started
[6] Position at which the reading of an image is started

Note:

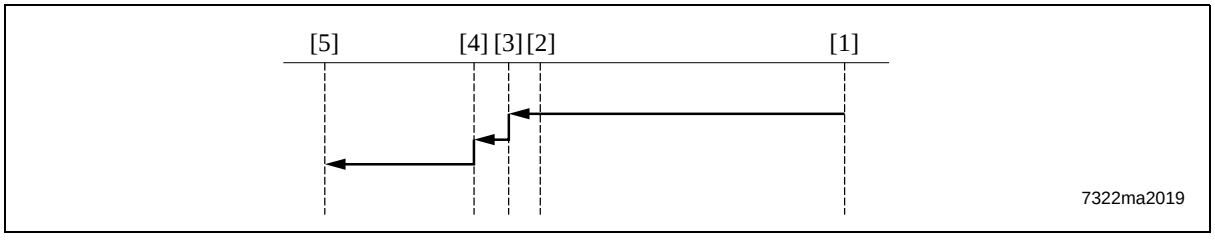
- When the tray 1 is selected manually, but not in APS, the shading operation is not executed.

△2 **(2) In AE copy:**



[1] Exposure unit standby position
[2] AE scanning range
[3] PS14
[4] Shading correction position 1
[5] Shading correction position 2
[6] Position at which the approach run of the exposure unit is started
[7] Position at which the reading of an image is started

△2 **B. Exposure unit movement in DF mode**



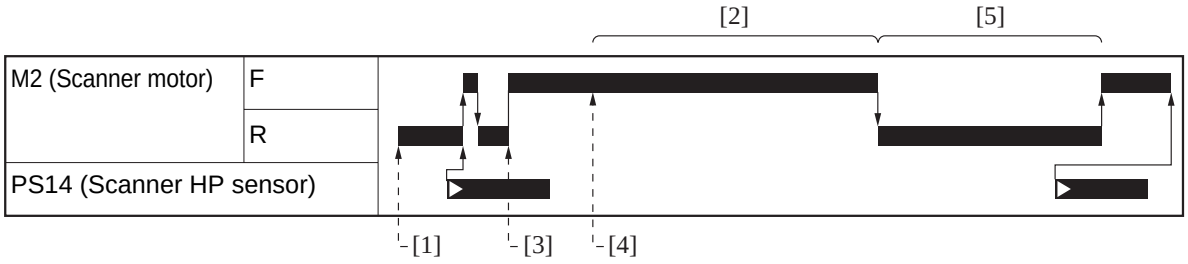
[1] Exposure unit standby position
[2] PS14
[3] Shading correction position 1
[4] Shading correction position 2
[5] DF reading position

1.2.3 Original read control

The light from the exposure lamp reflects back from the original, passes through a lens, and hits the CCD sensor. The CCD sensor generates an electric signal (analog signal) corresponding to the light intensity. Then, according to the instruction from the SCB (System control board), the ADB (A/D conversion board) converts this signal into a digital signal.

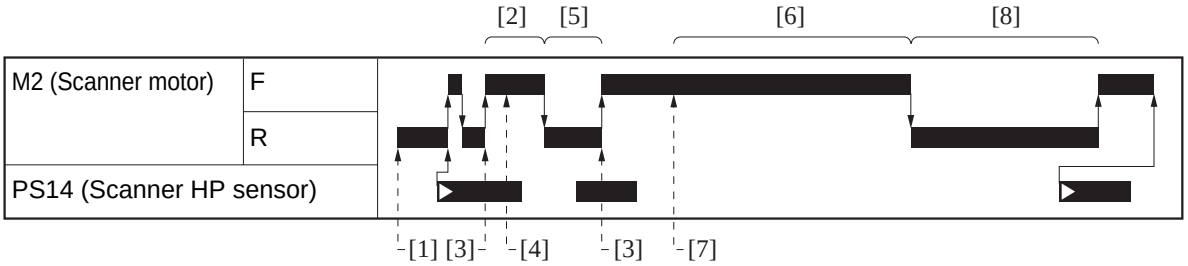
A. Original read timing

(1) Platen mode, when the manual density is being set



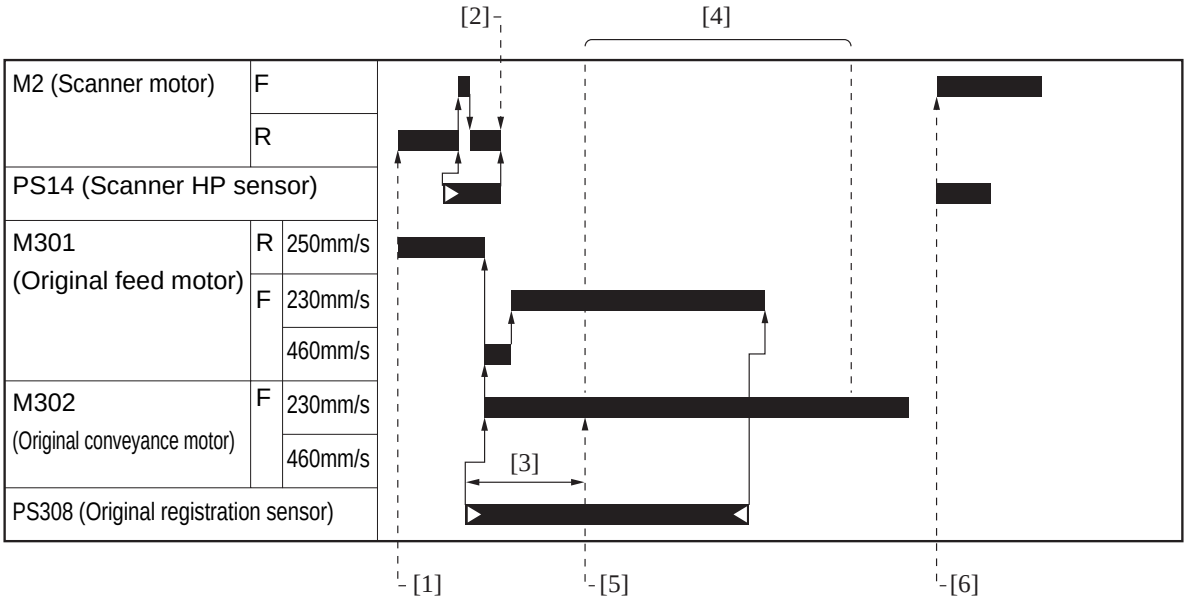
[1] START button (ON)
[2] Exposure lamp (forward)
[3] Position to which the exposure unit starts
[4] Position at which reading of the original starts
[5] Exposure scanning (backward)

(2) Platen mode, when the AE density is being set



[1] START button (ON)
[2] AE scanning (forward)
[3] Position to which the exposure unit starts
[4] Position at which reading of the AE density started
[5] AE scanning (backward)
[6] Exposure lamp (forward)
[7] Position at which reading of the original starts
[8] Exposure scanning (backward)

B. Original read timing (DF mode) *1



[1] START button (ON)
[2] DF reading position
[3] Position to which the original has been conveyed in the specified distance.
[4] Exposure conveyance
[5] Position at which reading of the original starts.
[6] Starting point from the DF reading position to the home position (exposure unit).

*1 In the DF mode, the operation when the manual density setting and the AE density setting is the same.

1.2.4 APS control

△2 The APS control is carried out at close detection of the RADF, and controlled by the CB (Main body control board), based on signals from the PS17 (APS sensor) and the CCD sensor. (For APS control by the RADF, see DF service manual.)

A. APS operation

The PS17 (APS sensor) detects the original size in the sub scanning direction, while the CCD sensor detects the original size in the main scanning direction.

B. Relationship between each of the sensors and the original size

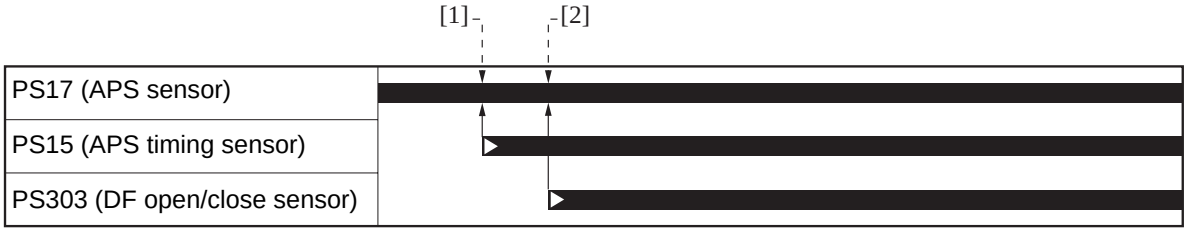
Original size	CCD sensor (Length of detection: mm)	PS17 (ON/OFF)
A3	297	ON
11 x 17	279.4	ON
B4	257	ON

Original size	CCD sensor (Length of detection: mm)	PS17 (ON/OFF)	
8.5 x 14 *1	215.9	ON	
8.5 x 11R	215.9	Metric system: ON	Inch system: OFF
A4R	210	Metric system: ON	Inch system: OFF
A4	297	OFF	
8.5 x 11	279.4	OFF	
B5R	257	OFF	
A5R	210	OFF	
B5	182	OFF	
A5	148	OFF	
5.5 x 8.5	139.7	OFF	
B6	128	OFF	
Postcard	102	OFF	

*1 8.5 x 14 cannot be distinguished from 8.5 x 11R, and is detected as 8.5 x 11R.

C. APS detection timing

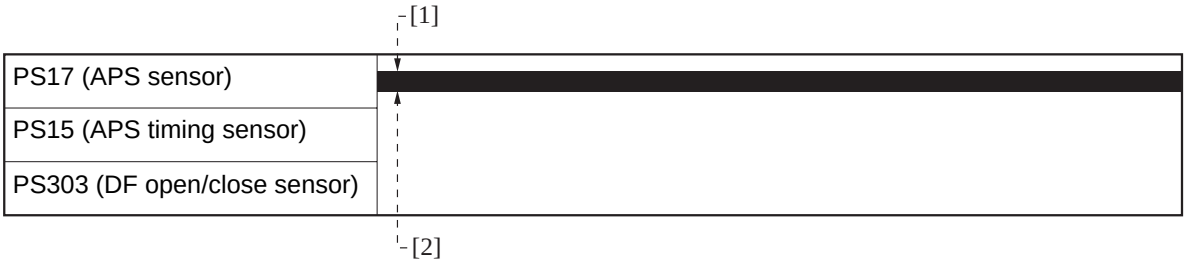
(1) Platen mode (when the RADF is closed)



[1] 1st original size detection

[2] 2nd original size detection

(2) Platen mode (when the RADF is open)



[1] Original size detection

[2] START button (ON)

1.2.5 AE control

During AE scan, the CCD sensor provided on the ADB (A/D conversion board) reads the density level of the original. The CPU on the SCB (System control board) process the data and, based on the results, selects the γ correction curve that will best reproduce the original.

A. AE sampling range

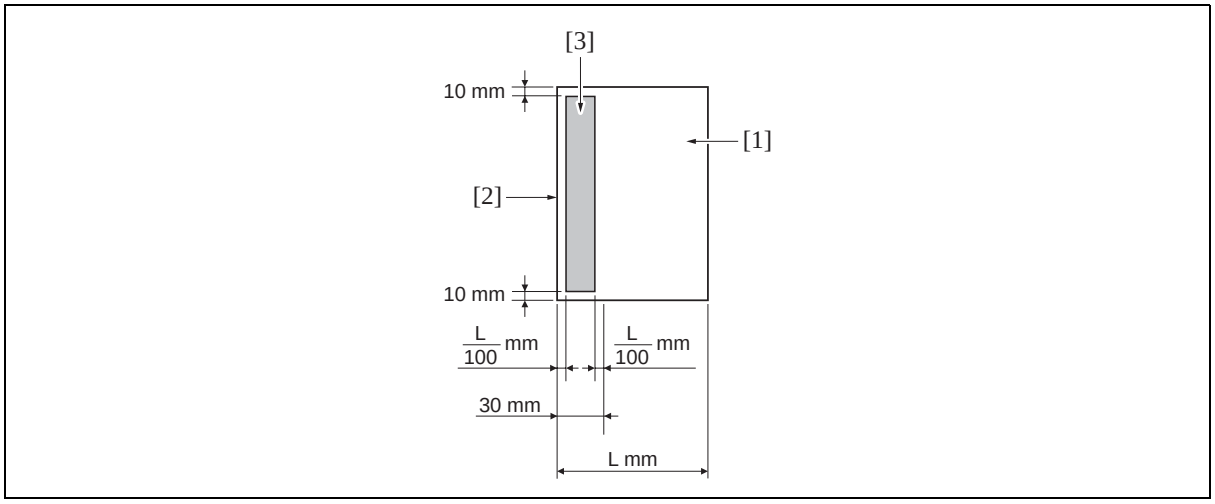
(1) While in platen copying

Main scanning direction

- Based on the original size recognized in the APS or out-of-original erasure mode, the range excepting 10mm in front and in rear.

Sub-scanning direction

- The range of 30mm from the leading edge of the original. However, the range excepting L/100mm in left and right when the length of the original is L mm.



[1] Original
[2] Leading edge of original
[3] AE sampling range

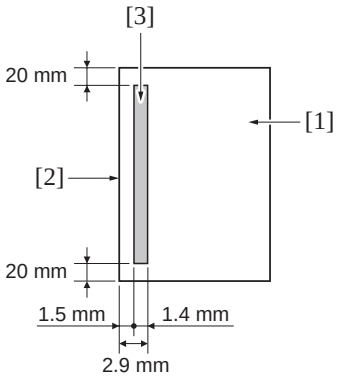
(2) While in DF copying

Main scanning direction

- Based on the original size recognized in the APS, the range excepting 20mm in front and in rear.

Sub-scanning direction

- The range between 1.5mm and 2.9mm from the leading edge of the original.



[1] Original
[2] Leading edge of original
[3] AE sampling range

1.2.6 Image processing

A. AOC (Automatic offset control)

The analog offset voltage for the CCD sensor output is automatically adjusted by IC on the ADB (A/D conversion board) so that this level becomes the lower limit for the A/D converter.

B. AGC (Automatic gain control)

The analog amplification for the CCD sensor output is automatically adjusted so that the CCD sensor output level in the shading white correction becomes the upper limit for the A/D converter.

C. Shading correction

(1) Types of the shading correction

- White correction
- Black correction

(2) Execution timing

- At SW2 (Sub power switch) ON
- At the start of scan job

D. Other image processing

(1) Brightness/density conversion

(2) Text/dot pattern judgement

(3) Filtering

(4) Magnification change processing

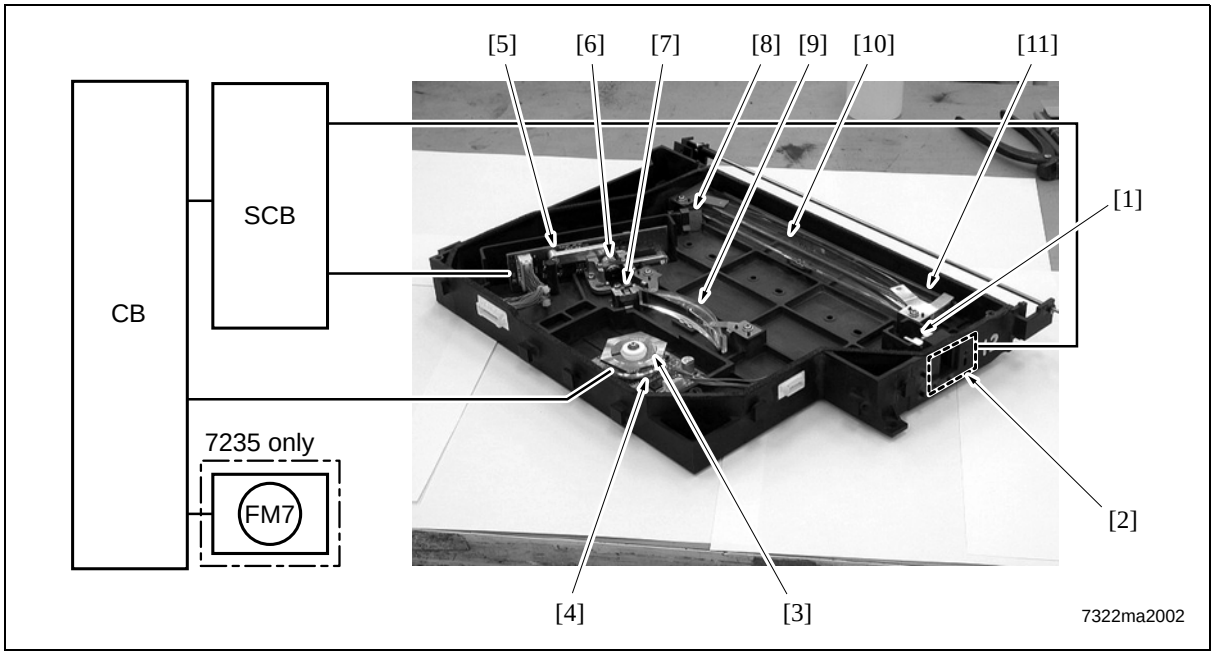
(5) Error diffusion processing

(6) Data compression/elongation processing

2. WRITE UNIT

2.1 Composition

△2



Symbol	Name	Function or method
[1]	Index lens	Converging of laser beams reflected from the index mirror
[2]	INDEX (Index sensor board)	Control of the laser write position in the main scanning direction
△2 [3]	Polygon mirror	Laser beam scanning Hexahedron, 27,165rpm (7145) /38,976rpm (7235) / 33,071rpm (7228/7222)
[4]	M5 (Polygon motor)	Polygon mirror drive DC brushless motor, PLL control
△2 [5]	LDB (LD drive board)	Laser emission drive 1-chip/2-beam system, 15mW 780mm (7145) 1-chip/1-beam system, 5mW 780mm (Except the 7145)
[6]	Collimator lens	Making diffused laser beam parallel
[7]	Cylindrical lens 1	Correction of the laser path against error in the angle of the polygon mirror
[8]	Index mirror	Reflection of laser beam upon the INDEX (Index senror board)
[9]	fθ lens	Unified laser scanning speed against the laser irradiation surface on the drum
[10]	Cylindrical lens 2	Correction of the laser path against error in the angle of the polygon mirror
[11]	Dust-proof glass	Preventive measure for keeping the interior of the write unit clean
△2 FM7*1	Polygon cooling fan	Cooling of the M5 (Polygon motor)

△2 *1 7235 only

2.2 Operation

2.2.1 Image writing

The image data from the CCD sensor is converted into digital form by the ADB (A/D conversion board), and its image processing is then carried out on the SCB (System control board). Based on the processed image data, the image is written onto the drum by the laser beam output from the LDB (LD drive board).

2.2.2 Write control

A. Dot diameter adjustment

The sensor on the toner control sensor board detects the patch image density on the drum, and the LDB (LD drive board) controls the quantity of laser beam so that its output value becomes the specified value.

(1) Timing for execution

a. While in copying

- Executed once for every 20 copies added up. However, when 20 copies are added up in the middle of the job, the execution is made at the time of completion of the job.

b. Anytime other than while in copying

- While in the L inspection
- When the drum counter is reset
- When the sub power is turned on. However, this is subject to the settings 6 and 7 of the DIPSW16 in the 25 mode.

△2 **B. APC (Automatic power control)**

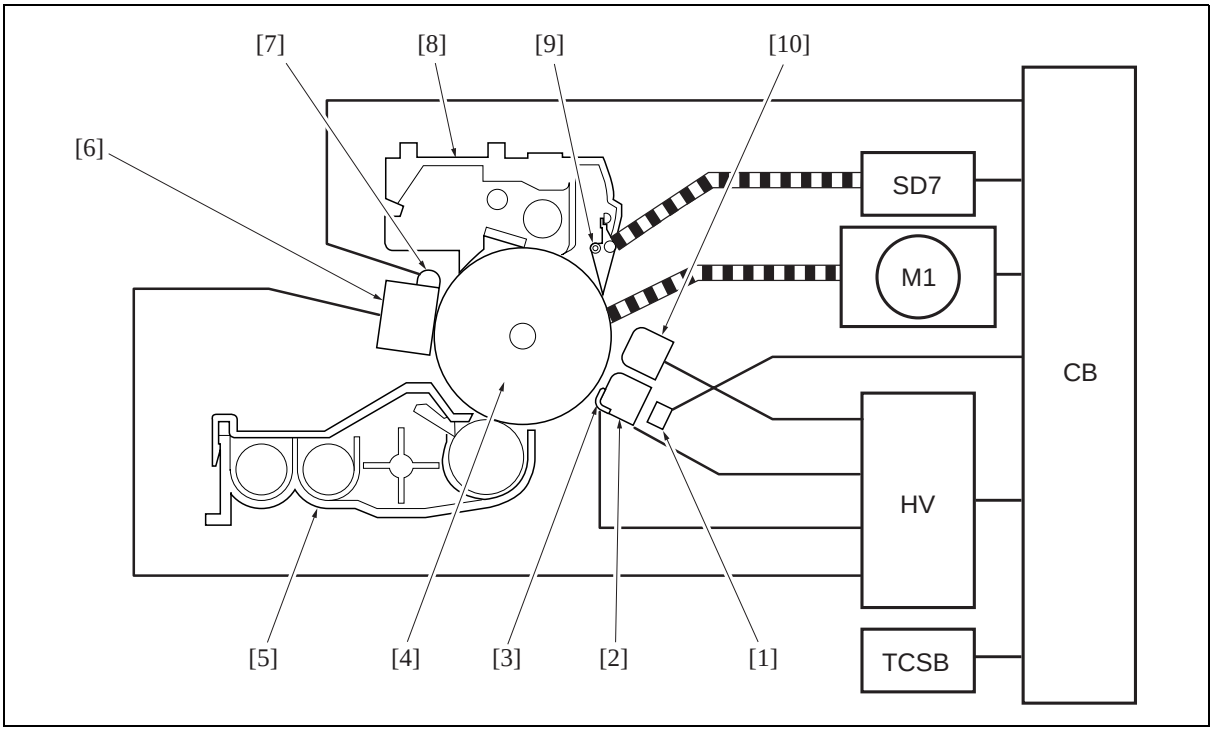
The LDB (LD drive board) monitors the laser output value for every one scan, and maintains the laser beam quantity at the fixed level by driving the laser so that it becomes the output value set for the dot diameter adjustment.

△2 **C. Write timing**

The SCB (System control board) uses a laser detection signal from the INDEX (Index sensor board) to determine the starting point for laser writing for every one scan in the drum shaft direction.

3. DRUM UNIT

3.1 Composition



Symbol	Name	Function or method
[1]	TSL (Transfer synchronization lamp)	Separation support LED
[2]	Transfer corona unit	Transfer of toner from the drum to paper DC positive corona discharge *1 Wire discharge: Tungsten wire with oxide film (ϕ 0.06mm) With manual wire cleaning mechanism provided Constant current DC output range: 0 to 350 μA
[3]	Paper entrance guide plate	Conveyance guide for paper supplied High voltage applied to prevent toner adhesion: -500VDC (constant voltage)
⚠2 [4]	Drum	Image formation base OPC drum (ϕ 60mm)
⚠2 [5]	Developing unit	Formation of a toner image on the drum (See “4. Developing unit”.)
⚠2 [6]	Charging corona unit	Application of electric charge on the drum surface DC corona discharge (Scotron) Wire discharge: Gold-plated skin-pass tungsten wire (ϕ 0.06mm) With manual wire cleaning mechanism provided Constant current DC output range: -320 to -1000 μA Grid bias: Charging control plate Constant current DC output range: -450 to -1090V

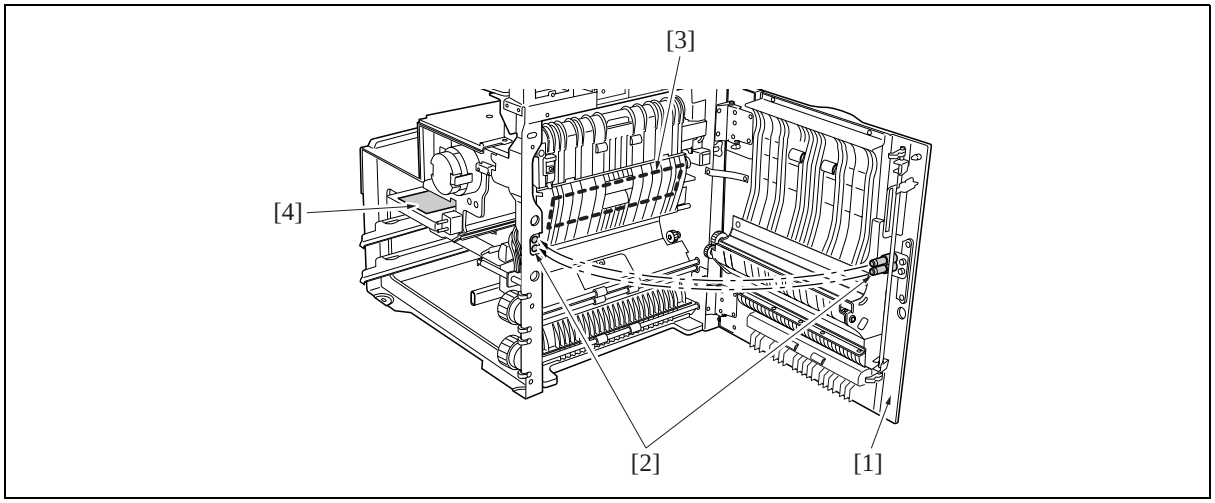
Symbol	Name	Function or method
[7]	PCL (Pre-charging exposure lamp)	Erasure of potential on the drum surface LED
[8]	Cleaning/recycle section	Cleaning and collection of toner on the drum (See “5. Toner supply/cleaning/recycle section”.)
[9]	Separation claw	Support for the separation of paper from the drum Pressure/release method by SD7 (Separation claw solenoid)
[10]	Separation corona unit	Separation of transferred paper from the drum AC/DC corona discharge *1 Wire discharge: Tungsten wire with oxide film (ϕ 0.06mm) With manual wire cleaning mechanism provided Constant current AC output range: 1.5 to 5.0kV Constant current DC output range: 0 to -300μA
SD7	Separation claw solenoid	Separation claw pressure/release 24VDC drive
M1	Main motor	Driving of the drum, cleaning/recycling section DC brushless motor, PLL control
HV	High voltage power	High voltage power supply to the charging corona, transfer corona, separation corona, paper entrance guide plate and developing bias Method to increase voltage by inverter from 24VDC
TCSB	Toner control sensor board	Detection of the patch image density on the drum Detection of temperature around the drum

*1 Control is made so that an output value becomes a little higher for a thick paper and a little lower for a thin paper as compared with a plain paper.

Note for the transfer/separation corona

⚠Caution:

- **A copy should not be made when the ADU door is open with the interlock forcibly turned on. Otherwise, the contact (spring) of the ADU door develops high voltage and you may get an electric shock.**

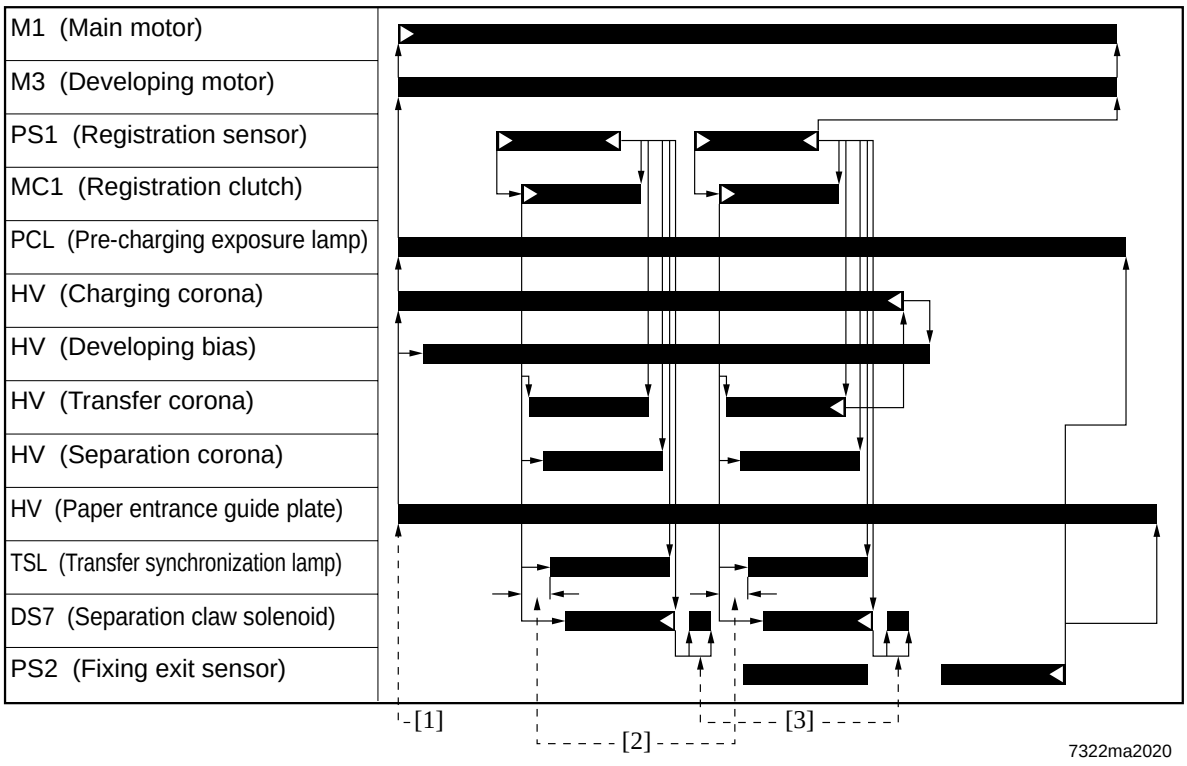


[1] ADU door
[2] Contact
[3] Transfer/separation corona unit
[4] HV (High voltage unit)

3.2 Operation

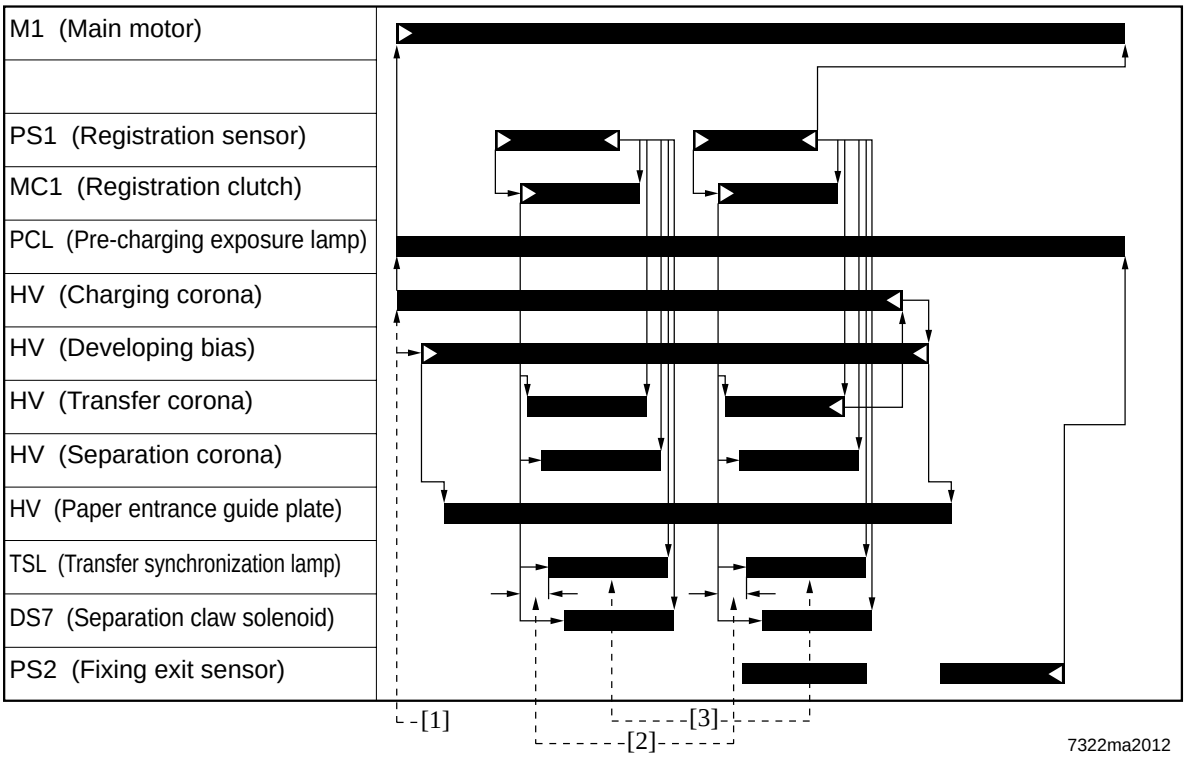
3.2.1 Image formation timing (when copying two sheets)

△2 **A. In the case of the 7145**



[1] START button (ON)
[2] Varies depending on the type of paper.
[3] Driving of the separation claw to prevent the trailing edge of paper from getting stained.

⚠2 B. In the case of the 7235/7228/7222



[1] START button (ON)

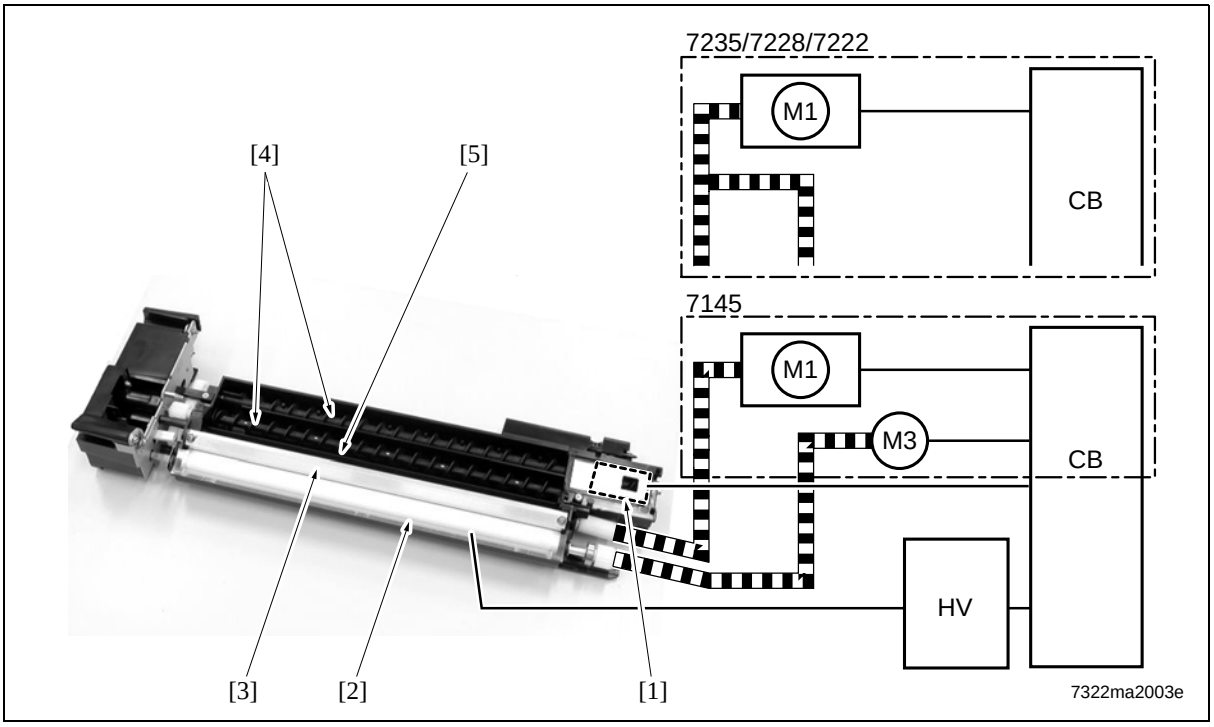
[2] Varies depending on the type of paper.

[3] Varies depending on the environment in which it is installed.

4. DEVELOPING UNIT

4.1 Composition

△2



Symbol	Name	Function or method
[1]	TDS (Toner density sensor)	Detection of toner density in the developing unit L detection method
[2]	Developing sleeve	Coveyance of developing materials by magnetic force to the drum surface Two-component developing method (developing materials: Toner + Carrier) Developing bias voltage applied Constant voltage DC output range: -350 to -830V
[3]	Developing regulation plate	Regulation of the spiking amount of developing materials on the developing sleeve Regulation plate method
[4]	Agitator screw	Agitation of developer and conveyance of developing materials to the agitator wheel Agitator wheel method
[5]	Agitator wheel	Agitation of developer and conveyance of developing materials to the developing sleeve 4-vane wheel method
△2 M1	Main motor	Driving of the agitating turbine, the agitating screw and the developing sleeve (except the 7145) DC brushless motor, PLL control
△2 M3*1	Developing motor	Driving of the developing sleeve

△2 *1 7145 only

4.2 Operation

4.2.1 Developing control

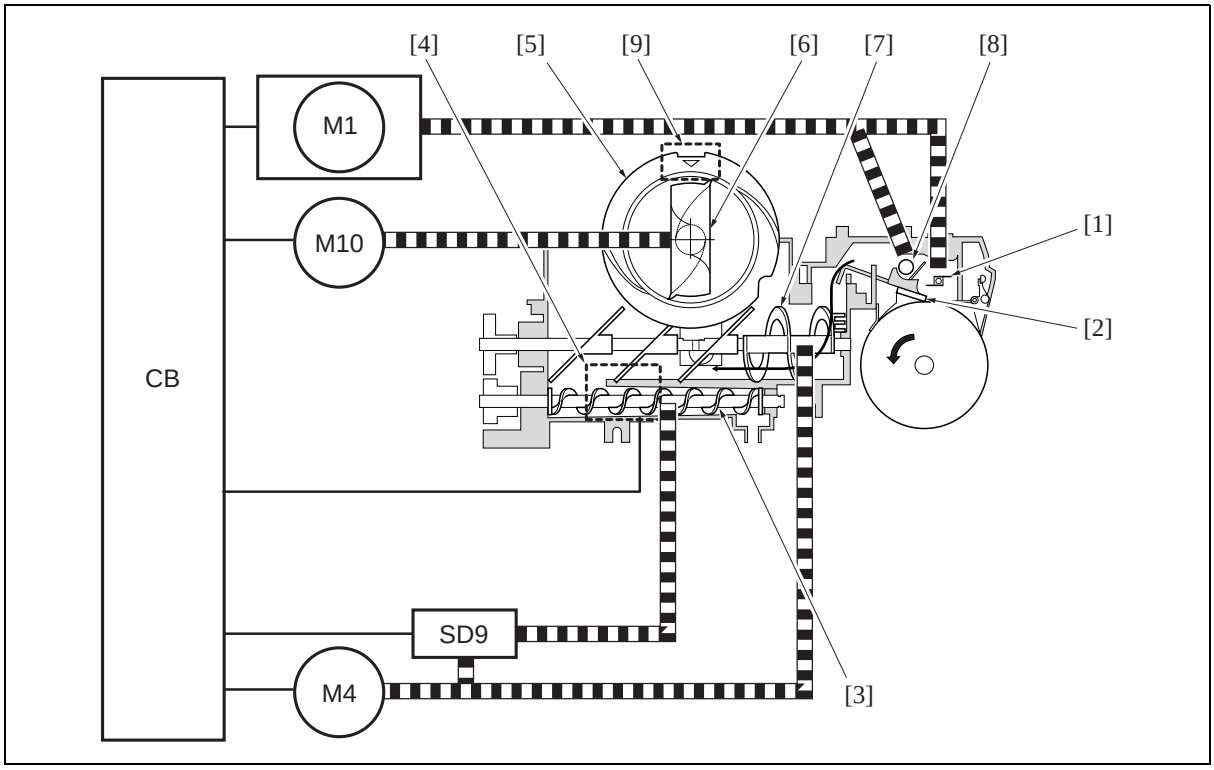
For details of each operation timing of developing, see “3. Drum section”.

4.2.2 Control of toner density in the developing unit

The TDS (Toner density sensor) uses the L detection method (detection of permeability in developing materials) to detect the toner density of developing materials. The value thus obtained is compared with the standard value of the toner density for the L detection adjustment that is recorded in the PCU contained in the CB (Main body control board) to see if toner should be supplied or not. (For details of toner supply, see “5. Toner supply/cleaning/recycling section”.)

5. TONER SUPPLY/CLEANING/RECYCLE UNIT

5.1 Composition



Symbol	Name	Function or method
[1]	Toner collection sheet	Collection of toner separated by the cleaning blade from the drum surface Rotating collection method
[2]	Cleaning blade	Drun cleaning Drum contact/separation method
[3]	Toner conveyance screw	Agitation of toner and conveyance of toner to the developing unit Screw method
[4]	TLD (Toner level sensor)	Detection of the toner level in the toner supply unit (Detected when the residual quantity of toner gets to about 30g.) Piezo element method
[5]	Toner bottle	Toner supply (bottle capacity: 676g) Toner bottle rotation method
[6]	Toner supply paddle	Conveyance of toner from the toner bottle to the toner supply unit Fixed method (Since the toner bottle rotates, this serves as the toner introduction section.)
[7]	Toner agitation plate	Agitation of toner supplied from the toner bottle and the cleaning/recycle section, and conveyance of the toner to the toner conveyance screw Screw method
[8]	Collected toner conveyance screw	Conveyance of toner from the cleaning section to the toner supply unit Screw method

Symbol	Name	Function or method
[9]	PS5 (Toner bottle sensor)	Detection of the setting of the toner bottle Photosensor
M1	Main motor	Driving of the toner collection sheet and the collected toner conveyance screw DC brushless motor, PLL control
M4	Toner supply motor 1	Driving of the toner conveyance screw and the toner agitator plate Stepping motor
M10	Toner supply motor 2	Toner bottle Stepping motor
SD9	Toner solenoid	Transmission of driving force from the M4 (Toner supply motor) to the toner conveyance screw 24VDC drive

5.2 Operation

5.2.1 Toner supply control when the toner level in the toner supply section gets reduced

A. Toner supply operation:

When toner in the toner supply unit is running short, the TLD (Toner level sensor) turns on. This causes the M10 (Toner supply motor 2) to turn on to rotate the toner bottle and replenish toner to the toner supply unit. When toner has been supplied, the TLD turns off to monitor the toner level.

B. Operation when toner is not supplied:

When the TLD (Toner level sensor) has been kept turned on for the specified period of time, it is considered that no toner remains in the toner bottle and a message is displayed on the operation LCD.

C. Toner level detection timing:

The TLD (Toner level sensor) detects at all times the toner level during copy operation.

5.2.2 Toner supply control when toner density in the developing unit gets reduced

A. When power is on:

The TDS (Toner density sensor) detects the toner density in the developing unit the specified period of time after the SW2 (Sub power switch) is turned on. When the value thus detected at this time is below the initial density recorded in the CPU contained in the CB (Main body control board), the M4 (Toner supply motor 1) and the SD9 (Toner solenoid) are turned on to start to replenish toner up to the specified level of density.

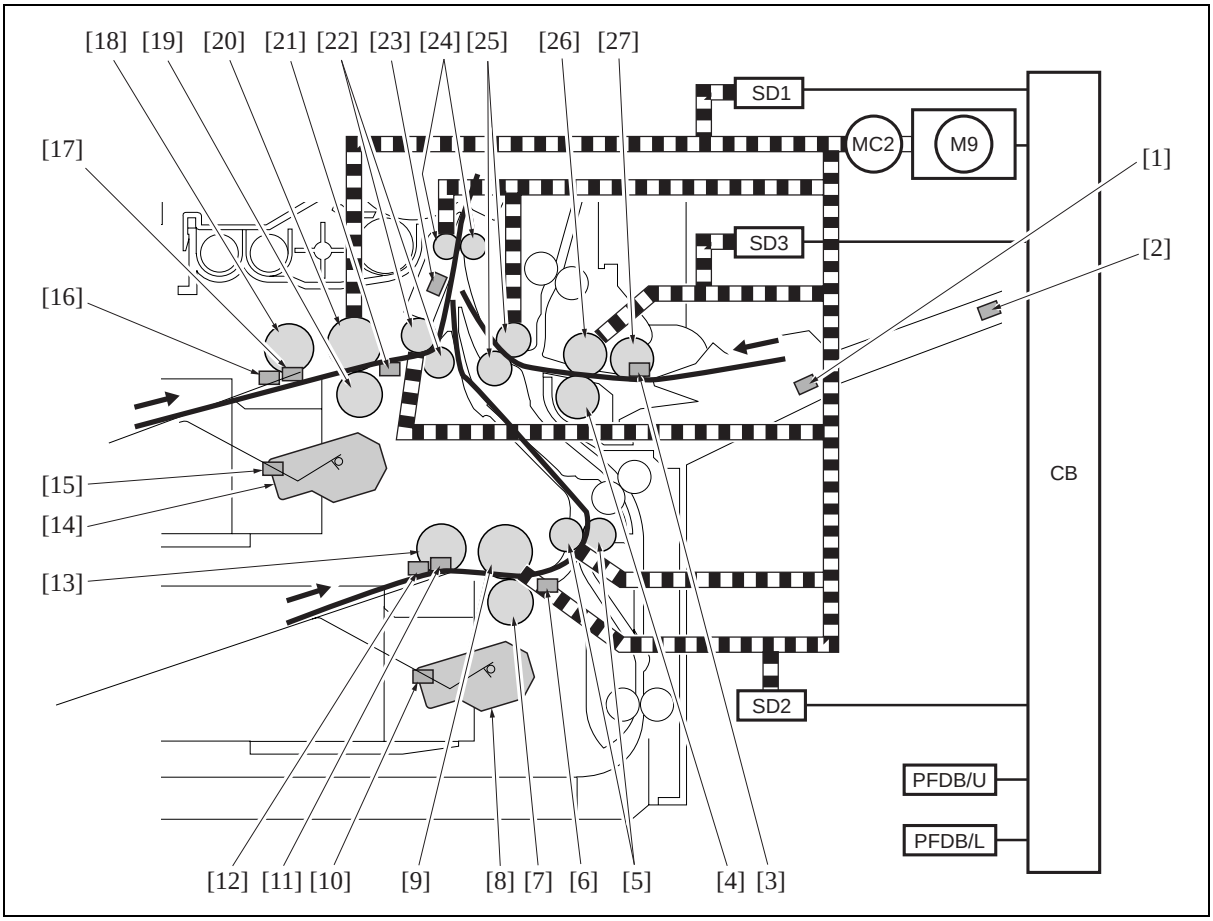
B. While in copy operation:

While in copy operation, the TDS (Toner density sensor) monitors the toner density. Using the output voltage of the TDS to turn on the SD9 (Toner solenoid), the M4 (Toner supply motor 1) determines the time required for toner supply.

TDS output voltage	Time required for toner supply
2.01V or less	0 sec.
2.02 to 2.08V	0.10 sec.
2.09 to 2.16V	0.20 sec.
2.17 to 2.23V	0.30 sec.
2.24 to 2.31V	0.40 sec.
2.32 to 2.39V	0.50 sec.
2.40V or more	0.70 sec.

6. PAPER FEED UNIT

6.1 Composition



Symbol	Name	Function or method
[1]	VRI (Bypass tray paper size sensor VR)	Detection of paper size in the direction of the width of the by-pass tray
[2]	PS20 (Bypass tray paper size sensor)	Detection of paper size in the direction of the length of the by-pass tray
[3]	PS13 (Bypass tray no paper sensor)	Detection of the presence of bypass feed paper
[4]	Double feed prevention roller	Double feed prevention of paper, Torque limiter
[5]	Conveyance roller	Paper conveyance
⚠2 [6]*1	PS22 (Timing sensor/L)	Detection of tray 2 paper conveyance condition
[7]	Double feed prevention roller	Double feed prevention of paper, Torque limiter
[8]	M8 (Tray motor/L)	Tray 2 paper liftup plate drive, DC motor
[9]	Feed roller	1st paper feed power transmission
[10]	PS12 (Tray set sensor/L)	Tray 2 detection and remaining paper detection
[11]	PS10 (Upper limit sensor/L)	Tray 2 paper upper limit detection
[12]	PS11 (No paper sensor/L)	Detection of the presence of tray 2 paper
[13]	Paper feed roller	Tray 2 paper feed
[14]	M7 (Tray motor/U)	Tray 1 paper liftup plate drive, DC motor

⚠2 *1 7145/7235/7228 only

Symbol	Name	Function or method
[15]	PS9 (Tray set sensor/U)	Tray 1 detection and remaining paper detection
[16]	PS8 (No paper sensor/U)	Detection of the presence of tray 1 paper
[17]	PS7 (Upper limit sensor/U)	Tray 1 paper upper limit detection
[18]	Paper feed roller	Tray 1 paper feed
[19]	Double feed prevention roller	Double feed prevention of paper, Torque limiter
[20]	Feed roller	1st paper feed power transmission
[21]*1	PS21 (Timing sensor/U)	Detection of tray 1 paper conveyance condition
[22]	Conveyance roller	Paper conveyance
[23]	PS1 (Registration sensor)	Detection of the paper passage for the Registration roller rotation ON/OFF
[24]	Registration roller	Paper conveyance
[25]	Conveyance roller	Paper conveyance
[26]	Feed roller	Bypass tray paper feed
[27]	Paper feed roller	Paper feed
M9	Paper feed motor	Paper feed system drive, DC brushless PLL control
MC2	Loop clutch	1st paper feed power transmission
SD1	1st paper feed solenoid/U	Tray 1 paper feed power transmission
SD2	1st paper feed solenoid/L	Tray 2 paper feed power transmission
SD3	Bypass solenoid	Bypass tray paper feed power transmission
PFDB/U	Paper feed detection board/U	Tray 1 paper size detection
PFDB/L	Paper feed detection board/L	Tray 2 paper size detection
CB	Main body control board	Overall control

△2 *1 7145/7235/7228 only

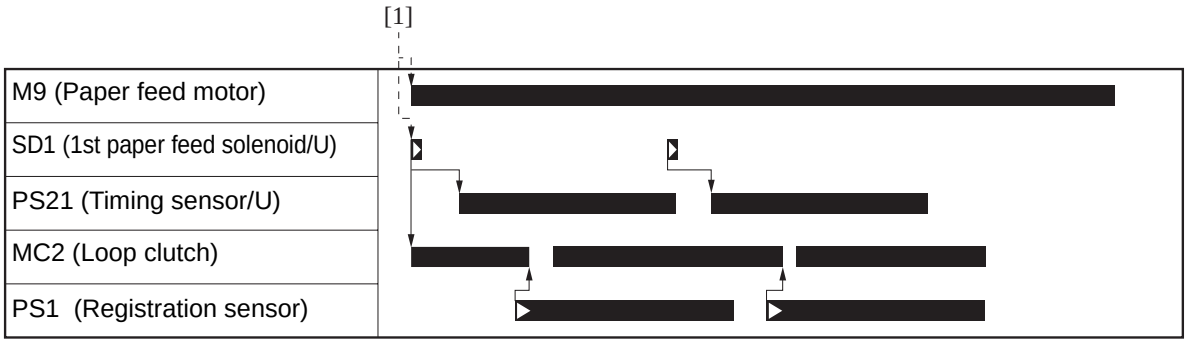
6.2 Operation

6.2.1 Tray up drive control

Since the operation is the same for both the tray 1 and the tray 2, the explanation is given of the tray 1.
When the paper feed tray is set, the PS9 (Tray set sensor/U) detects the tray with the M7 (Tray motor/U) turned on. This causes the paper up/down plate in the tray to go up. When the PS7 (Upper limit sensor/U) detects the paper upper limit, the M7 is turned off. When the sheets of paper get reduced as they are being fed through, the PS7 detects no remaining paper. At this time, the M7 is kept turned on until it detects the paper upper limit again, and paper is raised up to the specified level at all times.
When the tray is removed, its coupling with the drive section is disconnected to let the paper up/down plate go down by its own weight.
When papar is supplied by the bypass feed method and the SD3 (Bypass solenoid) turns on after the M9 (Paper feed motor) turns on, the bypass plate goes up to raise paper.

6.2.2 Paper feed control

The following shows the timing of paper feed by the tray 1. The timing of paper feed is basically the same for both the tray 2 and the bypass tray, and the actual paper feed in each case starts when the SD2 (1st paper feed solenoid/L) or the SD3 (Bypass solenoid) turns on respectively.



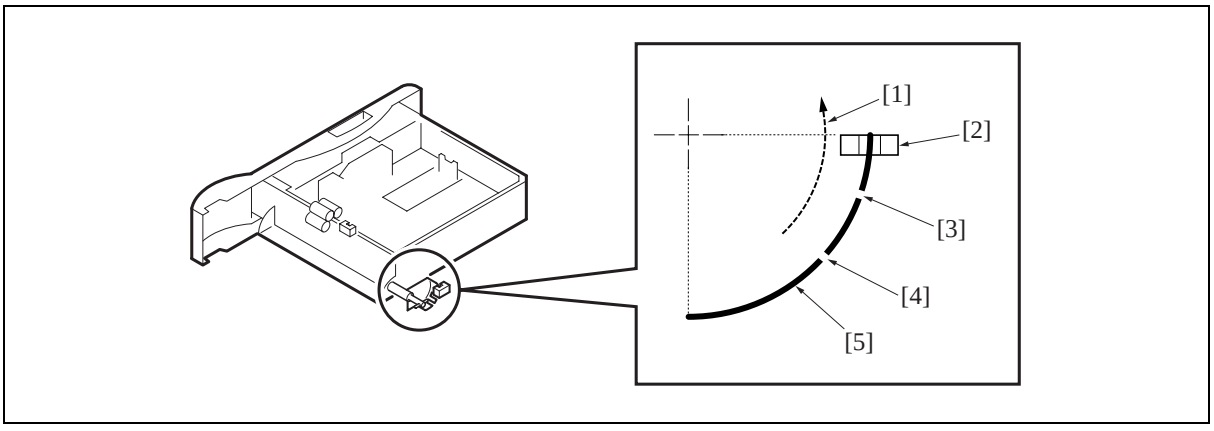
[1] START button (ON)

6.2.3 Remaining paper detection control

Since the operation is the same for both the tray 1 and the tray 2, the explanation is given of the tray 1 only.

The remaining paper quantity is detected by the PS9 (Tray set sensor/U). As the remaining paper is getting reduced, the actuator provided on the rear side of the tray starts to ratate gradually as shown in the drawing. The PS9 turns on and off each time it passes through a slit. The remaining paper quantity is detected by counting the number of ON/OFF's after the installation of the tray.

0 count: Full 1 count: Medium 2 counts: Low



[1] Rotating direction when the paper up/down plate is going up.
[2] PS9 (Tray set sensor/U)
[3] Slit 1
[4] Slit 2
[5] Actuator

6.2.4 Paper size detection

The paper size in the tray is detected by the CB (Main body control board), using signals sent from the PFDB/U (Paper feed detection board/U) and the PFDB/L (Paper feed detection board/L).
The paper size in the tray is set by the SW1 of the PFDB/U and the PFDB/L, and the CB detects a switch signal according to the position of the SW1. The table below shows the relationship between the switch signal and the paper size.

For metric area

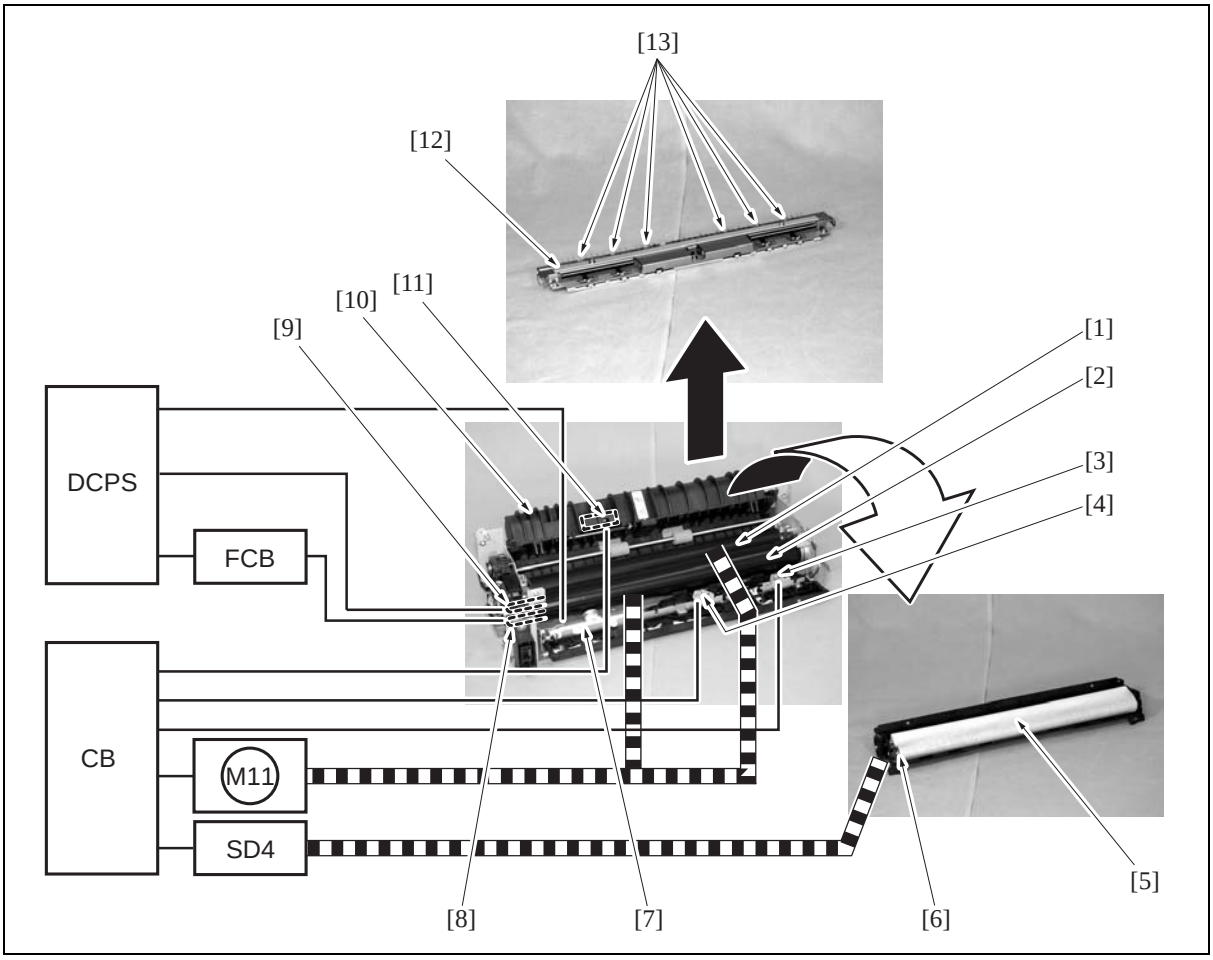
Paper size		Switch signal			
Tray 1	Tray 2	SIZE A	SIZE B	SIZE C	SIZE D
8.5 x 14	11 x 17				
B5	B5	○			
B4	B4		○		
A5R	A5R	○	○		
A4	A4			○	
A4R	A4R	○		○	
F4	A3		○	○	
5.5 x 8.5R	F4	○	○	○	
8.5 x 11	8.5 x 11				○
8.5 x 11R	8.5 x 11R	○			○

For inch area

Paper size		Switch signal			
Tray 1	Tray 2	SIZE A	SIZE B	SIZE C	SIZE D
8.5 x 14	11 x 17				
B5R	A5R	○			
B4	A4		○		
A5R	A4R	○	○		
A4	A3			○	
A4R	F4	○		○	
F4	5.5 x 8.5R		○	○	
5.5 x 8.5R	8.5 x 11	○	○	○	
8.5 x 11	8.5 x 11R				○
8.5 x 11R	8.5 x 14	○			○

7. FIXING UNIT

7.1 Composition



Symbol	Name	Function or method
[1]	Fixing pressure roller	Fixing of toner by pressure Silicon rubber + PFA tube
⚠2 [2]	Fixing heat roller	Toner fixing by means of heat Aluminum + PFA coating Temperature setting: Idling: 376 to 369°F While in copy operation - Other than when feeding paper by the by-pass tray in the single sided copy mode: 381°F While in copy operation - When feeding paper by the bypass tray in the single sided copy mode (by selecting the type of paper) • Thick paper mode 1: 381 + 50°F • Thick paper mode 2: 381 + 50°F • Thin paper: 381 - 50°F (Except the 7145) • Other than the above: 381°F Copying - 381 - 41°F, when a double sided copy is being made. Low power mode: 185°F (can be changed in the 25 mode)

Symbol	Name	Function or method
[3]	TH2 (Fixing temperature sensor/2)	Detection of temperature at the edge (front side) of the fixing heating roller Contact type
[4]	TH1 (Fixing temperature sensor/1)	Detection of temperature at the center of the fixing heating roller Contact type
[5]	Cleaning web	Cleaning of the fixing heat roller Web wind-up method
[6]	Fixing cleaning roller	Tension pressure on the cleaning web Spring pressure
[7]	TS (Thermostat)	Protection of the fixing heat roller against high temperature abnormality (about 428°F) Contact type
[8]	L3 (Fixing heater lamp/2)	Heating of the fixing heat roller (Sub) AC drive
[9]	L2 (Fixing heater lamp/1)	Heating of the fixing heat roller (Main) AC drive
[10]	Fixing guide	Paper conveyance guide, pressure/release of the fixing pressure roller
[11]	PS2 (Fixing exit sensor)	Detection of paper at the fixing unit exit Photosensor + actuator
[12]	Neutralizing brush	Neutralizing of paper that is exited Neutralizing by means of a brush
[13]	Fixing claw	Separation of paper from the fixing heat roller Spring pressure type (6 pcs.)
M11	Fixing motor	Driving of the fixing heat roller and the ADU conveyance roller/1 DC brushless motor, PLL control
SD4	Cleaning web solenoid	Driving of the cleaning web 24V drive
FCB	Fixing control board	Prevention of noise leak in the drive power for L3 (Fixing heater lamp /2) 220V system only

7.2 Operation

7.2.1 Fixing temperature control

The CB (Main body control board) uses the TH1 (Fixing temperature sensor/1) and the TH2 (Fixing temperature sensor/2) to detect the temperature of the fixing heating roller, and turns on and off the L2 (Fixing heater lamp/1) and the L3 (Fixing heater lamp/2) separately through the DCPS (DC power source) to maintain both the TH1 and the TH2 at the specified temperature.

A. Warm-up

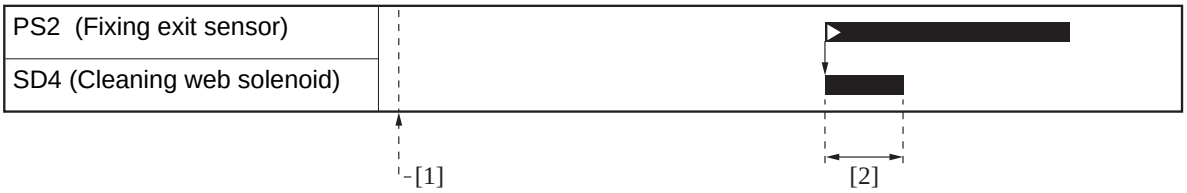
The CB (Main body control board) turns on the fixing heater lamp circuit within the DCPS (DC power source) immediately after the SW2 turns on, and keeps the L2 (Fixing heater lamp/1) and L3 the (Fixing heater lamp/2) turned on until the fixing heat roller reaches the specified temperature.

Once warm-up has completed, the CB switches the L2 and the L3 on and off so that the fixing heat roller can be maintained to the set temperature for idling.

- Warm-up time: 30 seconds or less (at the room temperature of 68°F) (7145)
- △2 Warm-up time: 19 seconds or less (at the room temperature of 68°F) (7235/7228/7222)

7.2.2 Cleaning web control

For each output of paper, the cleaning web is let off to be wound up.
The SD4 (Cleaning web solenoid) turns on based on the output of the PS2, causing the cleaning web to be driven to start a wind-up operation.

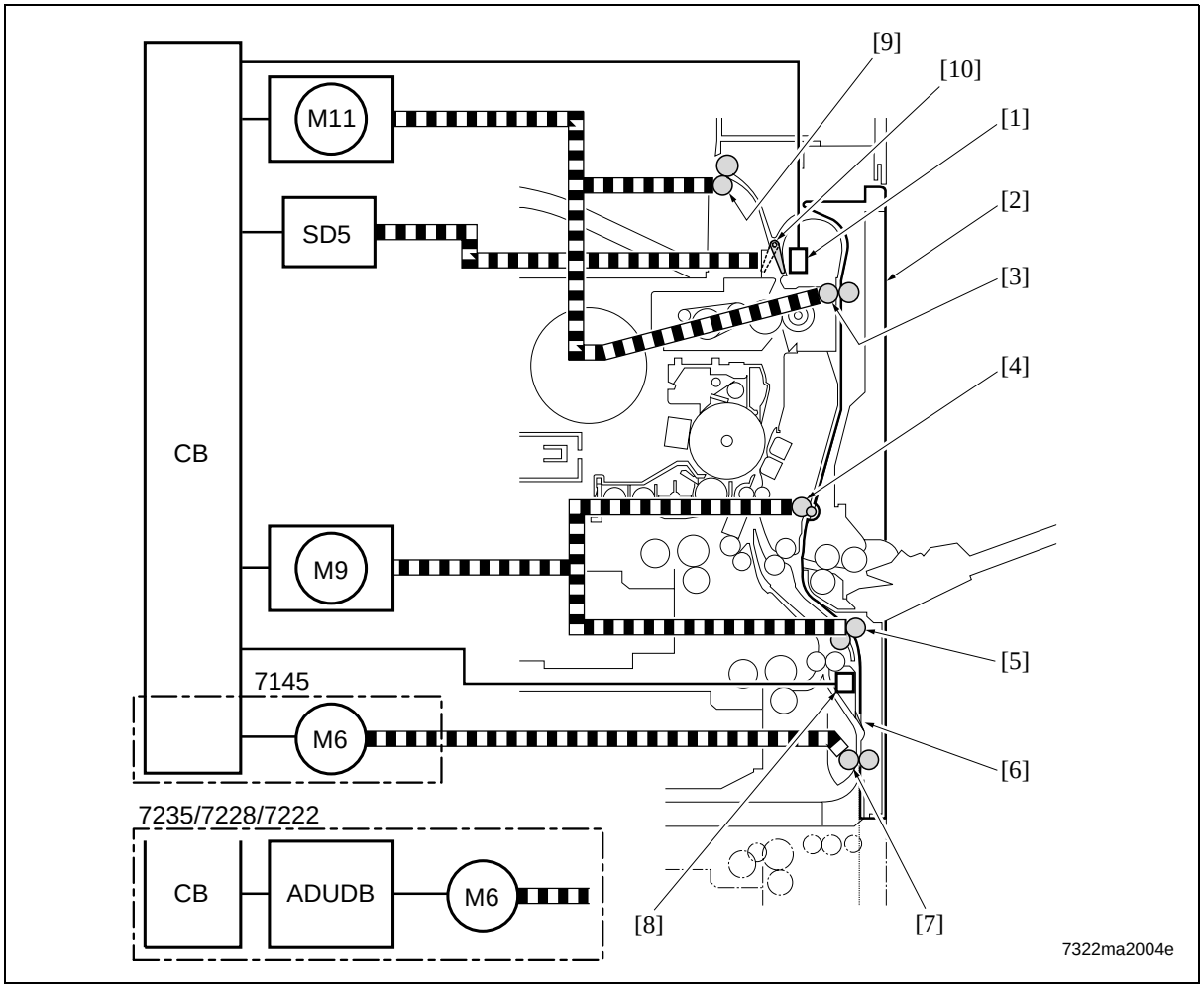


[1] START button (ON)

[2] 100 msec

8. ADU/PAPER EXIT SECTION

△2 8.1 Composition



Symbol	Name	Function or method
[1]	PS2 (Fixing exit sensor)	Detection of paper at the fixing unit exit Photosensor + actuator
[2]	ADU unit (ADU door)	Paper conveyance while in double sided copy Jam removal while in double sided copy
[3]	ADU conveyance roller/1	Paper conveyance through the ADU entrance Motor drive
△2 [4]	Decurler roller (7145) Conveyance roller (7235/7228/7222)	Paper conveyance through the ADU intermediate section and the correction of paper curling (7145) Paper conveyance through the ADU intermediate section (7235/7228/7222) Motor drive
[5]	ADU conveyance roller/2	Paper conveyance through the ADU intermediate section Motor drive
[6]	Switching sheet	Switching of conveyance path at the paper reverse section Switching by means of the elasticity of the PET sheet

⚠2 Symbol	Name	Function or method
[7]	ADU roller	Paper conveyance through the ADU exit and switching of the conveyance direction Motor drive
[8]	PS4 (ADU sensor)	Detection of paper at the ADU exit Photosensor + actuator
[9]	Paper exit roller	Paper exit Motor drive
[10]	Switching guide	Switching of the paper exit path at the fixing unit exit Solenoid drive
ADUDB *1	ADU drive board	Driving of the M6 (ADU motor)
M6	ADU motor	Driving of the ADU motor Stepping motor
M9	Paper feed motor	Driving of the decurler roller (7145 only) and the ADU conveyance rollers/2 DC brushless motor, PLL control
SD5	ADU gate solenoid	Pressure and release of the switching guide 24VDC drive
M11	Fixing motor	Driving of the paper exit roller DC brushless motor, PLL control

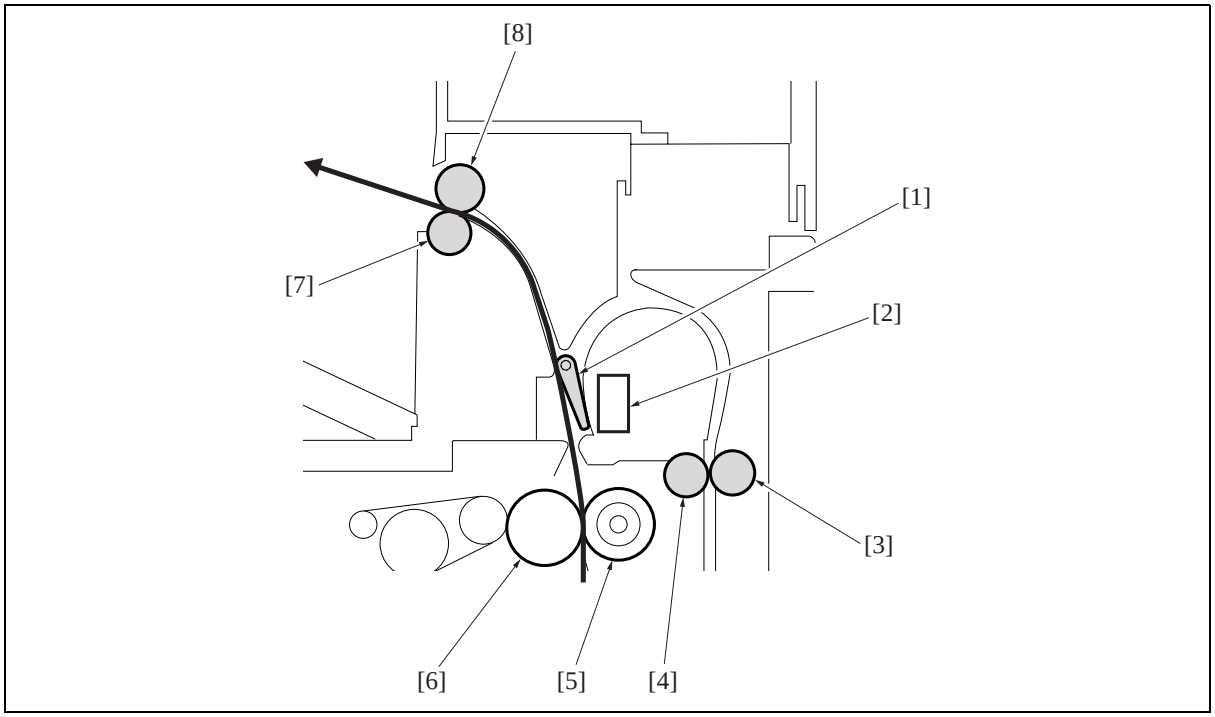
*1 Except the 7145

8.2 Operation

8.2.1 Switching control of the paper exit/ADU conveyance path

A. Straight paper exit path

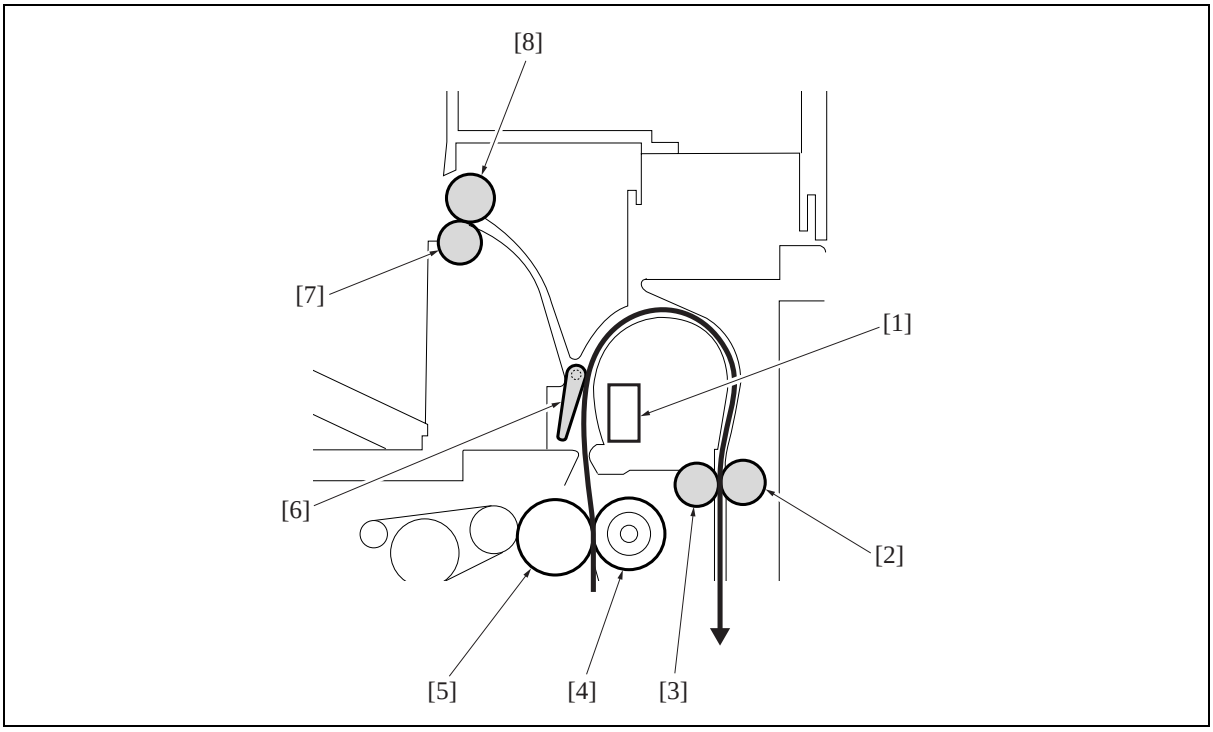
The straight paper exit path is applicable when a single side is copied as well as after the back side copy of paper is completed in the double sided copy mode.



[1] Switching guide (SD5 OFF)
[2] PS2 (Fixing exit sensor)
[3] ADU conveyance driven roller/1
[4] ADU conveyance roller/1
[5] Fixing pressure roller
[6] Fixing heat roller
[7] Paper exit driven roller
[8] Paper exit drive roller

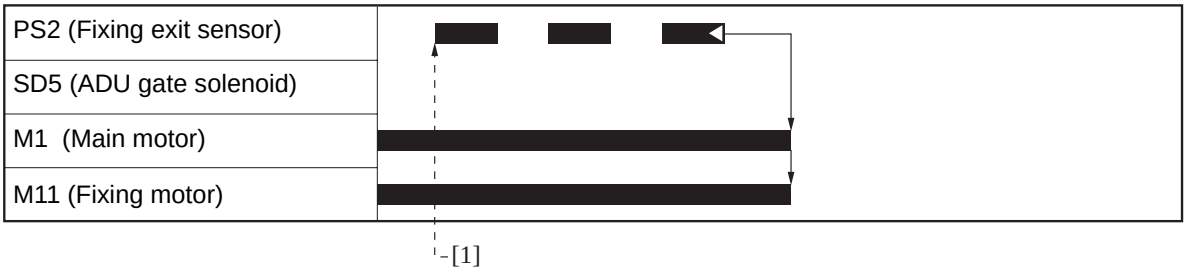
B. ADU conveyance path

The ADU conveyance path is applicable after the front side copy is completed in the double sided copy mode.



[1] PS2 (Fixing exit sensor)
[2] ADU conveyance driven roller/1
[3] ADU conveyance roller/1
[4] Fixing pressure roller
[5] Fixing heat roller
[6] Switching guide (SD5 ON)
[7] Paper exit driven roller
[8] Paper exit drive roller

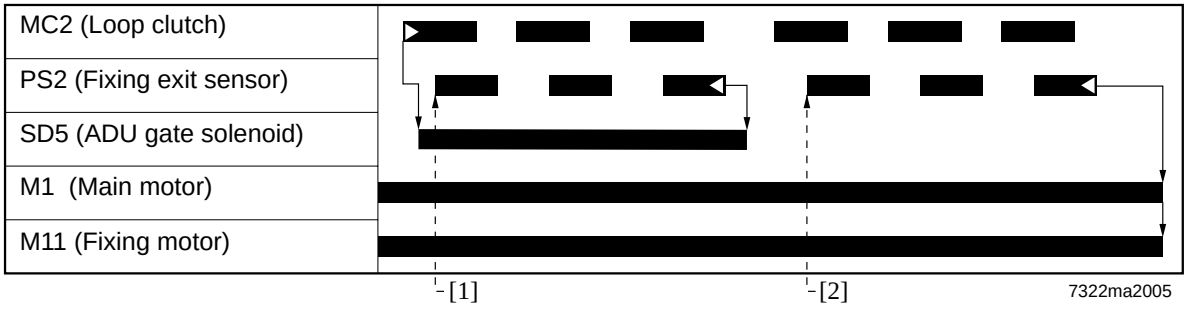
C. Straight paper exit operation (single sided 3 copies)



[1] 1st paper exit

D. ADU conveyance operation (double sided 3 copies)

△2



[1] 1st paper exit for the front side

[2] 1st paper exit for the back side

8.2.2 ADU conveyance control

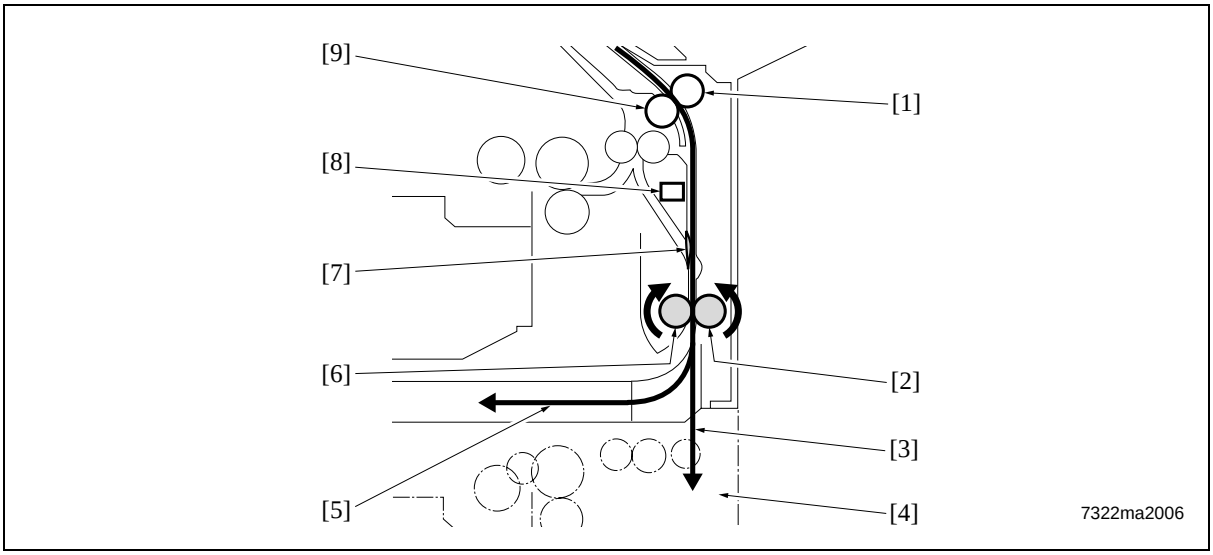
△2 When a sheet of paper, the front of which has been printed in the double sided mode is conveyed to the ADU unit, it is further conveyed to the ADU roller by the decurler roller (7145) or conveyance roller (except the 7145) and the ADU conveyance rollers/2 which are in turn driven by the M9 (Paper feed motor).

8.2.3 Paper reverse control

A. Paper reverse path

△2 **(1) When conveying paper**

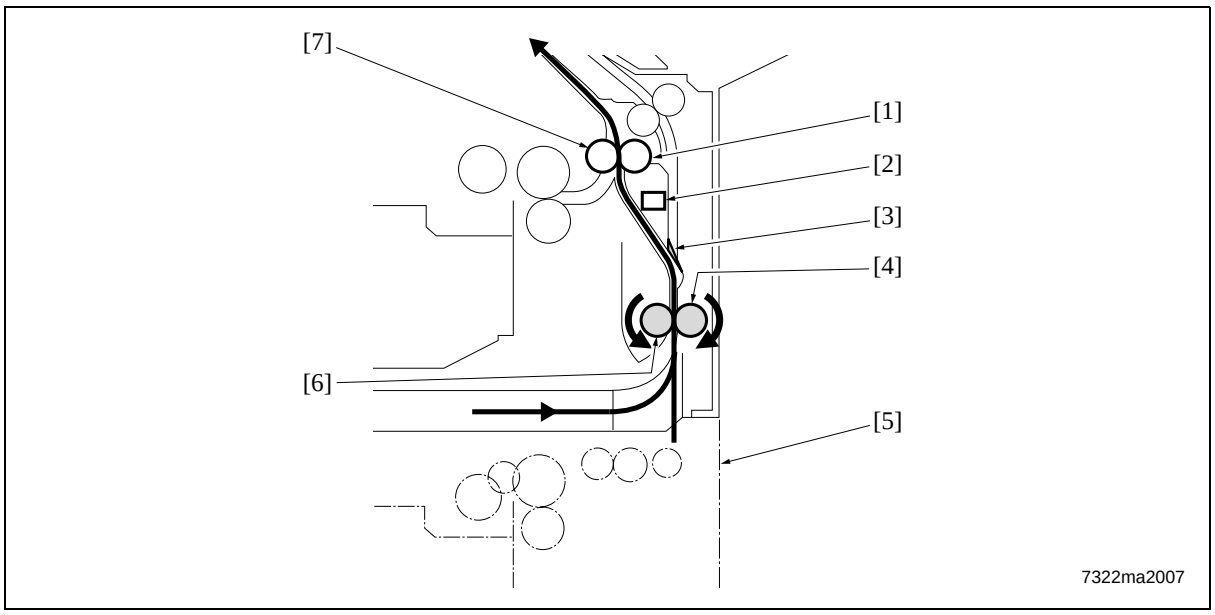
When a sheet of paper is conveyed from the ADU conveyance roller/2, it is further conveyed to the ADU roller by pushing the switching sheet open.



[1] ADU conveyance driven roller/2
[2] ADU driven roller
[3] Conveyance path when DB is provided
[4] DB
[5] Conveyance path when DB is not provided
[6] ADU roller
[7] Switching sheet
[8] PS4 (ADU sensor)
[9] ADU conveyance roller/2

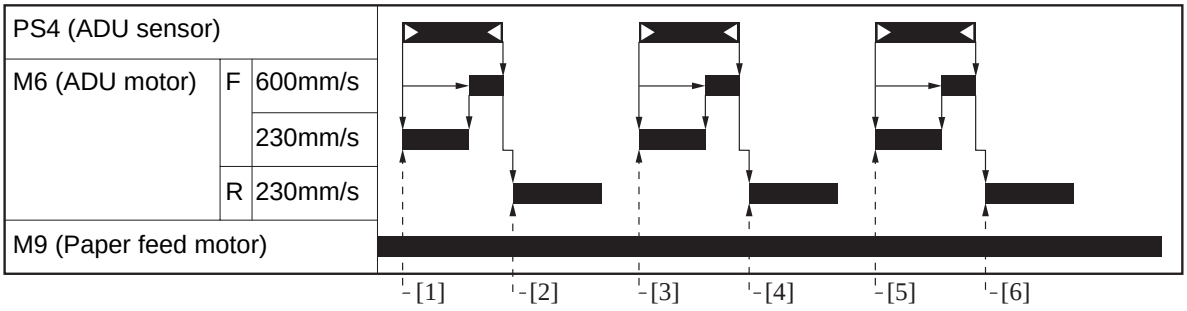
△2 **(2) When paper reverse**

Paper that has been conveyed is sent back by means of the reverse rotation of the ADU roller. At this time, the switching sheet uses its own elastic power to block the conveyance path to the ADU conveyance roller/2, and the paper is conveyed to the loop roller of the tray 2. As a result, the paper is turned inside out to be copied on the back side after passing through the same route as that for the paper sent from the tray 2.



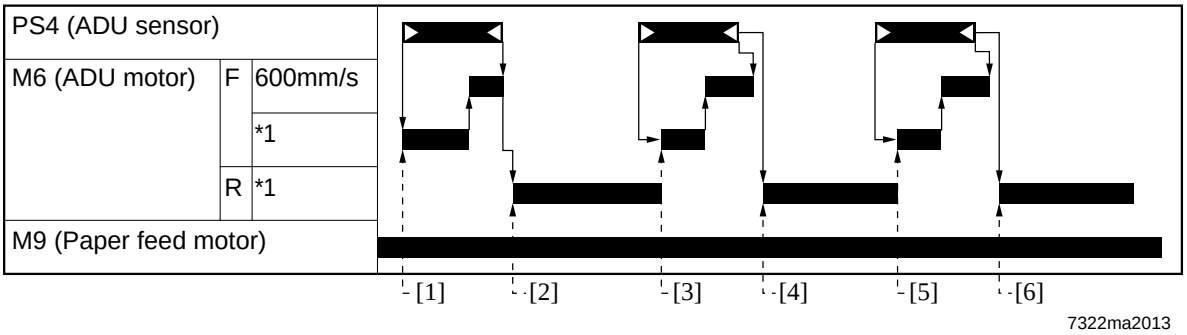
[1] Loop roller
[2] PS4 (ADU sensor)
[3] Switching sheet
[4] ADU driven roller
[5] DB
[6] ADU roller
[7] ADU conveyance roller/2

△2 **B. Paper reverse operation (7145)**



[1] Start of 1st paper conveyance
[2] Start of revere operation of 1st paper
[3] Start of 2nd paper conveyance
[4] Start of reverse operation of 2nd paper
[5] Start of 3rd paper conveyance
[6] Start of reverse operation of 3rd paper

⚠2 C. Paper reverse operation (7235/7228/7222)



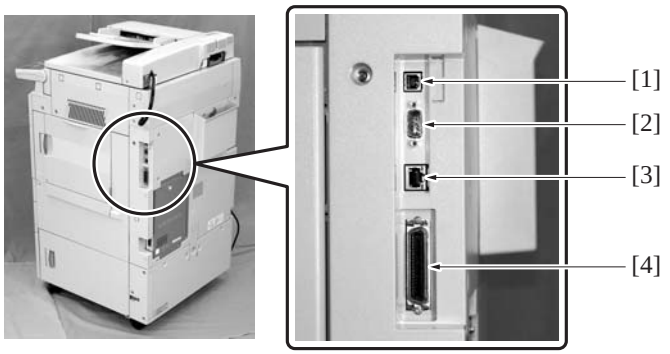
*1 165mm/s (7235) 140mm/s (7228/7222)

[1] Start of 1st paper conveyance
[2] Start of revere operation of 1st paper
[3] Start of 2nd paper conveyance
[4] Start of reverse operation of 2nd paper
[5] Start of 3rd paper conveyance
[6] Start of reverse operation of 3rd paper

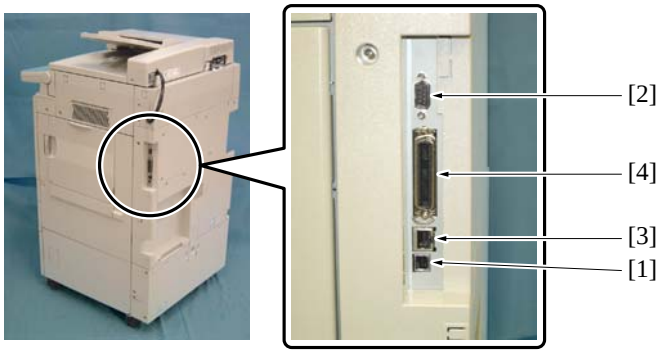
9. INTERFACE SECTION

⚠2 9.1 Composition

In the case of the 7145



In the case of the 7235/7228/7222



Symbol	Name	Function or method
[1]	Serial port (USB TypeB)	For ISW of copier/FAX, For serial output of the printer Ver. 1.1
[2]	Serial port (RS-232C)	For KRDS communication D-SUB 9-pin connector
[3]	RJ45 Ethernet port	Port for network
[4]	Parallel port (IEEE1284 (Compatible, Nible, ECP))	For ISW of copier/FAX/printer For parallel output of the printer 36-pin parallel interface

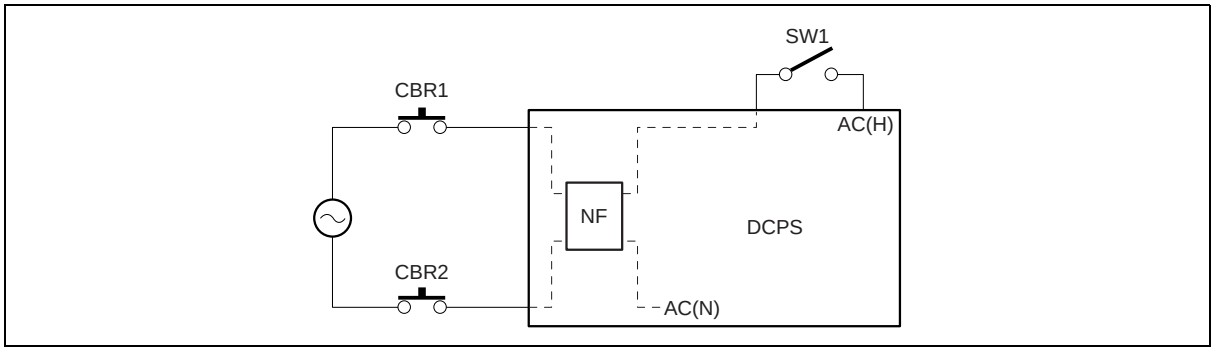
10. NETWORK SECTION

10.1 Composition

Item	Function name	Function	Purpose	Remarks
TCP/IP service	Arp	O	Obtain IP address	
	BootP	O	Obtain IP address	
	DHCP	O	Obtain IP address	
	DNS	O	Settle IP address	
	FTP Client	O	Scan to FTP	
	FTP Server	O	Scan to Box	
	IPP	O	Print	Support Ver. 1.0
	LPD/LPR	O	Print	
	Raw Socket	O	Print	Default port number = 9100
	SMTP	O	Scan to Email	
	POP	O	For POP before SMTP	
	POP before SMTP	O	Authorization of SMTP server access	
	HTTP 1.1	O	WebUtility	
	SNMP v1 (SNMP over TCP)	O	MIB access	
	SNMP v1 (SNMP over IPX)	O	MIB access	
	Telnet	X		
	SLP	X		
Netware service	Bindery	O	Print	
	NDS (including simultaneous support of Bindery)	O	Print	
	• PServer mode	O		
	• RPrinter/NPrinter mode	O		
	NDPS (Gateway)	O	Print	Corresponding in general purpose Gateway
	PCONSOLE /NWADMIN, interchangeable	O		
	Frame Type (802.3, 802.3, 802.3 SNAP, Ethernet II)	O	MAC frame corresponding	
AppleTalk service	EtherTalk PAP	O	Print	
MS Network service	SMB over NetBEUI	X	Print	

11. OTHER CONTROLS

11.1 Parts Energized When the Main Power Switch is OFF



The follwing components are powered regardless of whether the SW1 (Main power switch) is on or off, provided that the power cord remains plugged in.

A. CBR 1 and CBR 2 (Circuit breakers/1 and /2)

The circuit breakers serve to protect internal components against damage from short circuit. If current exceeds the specified value, the circuit breaker(s) will go off, cutting the power to the system.

B. NF (Noise filter)

This filter reduces noises that enter through the power line.

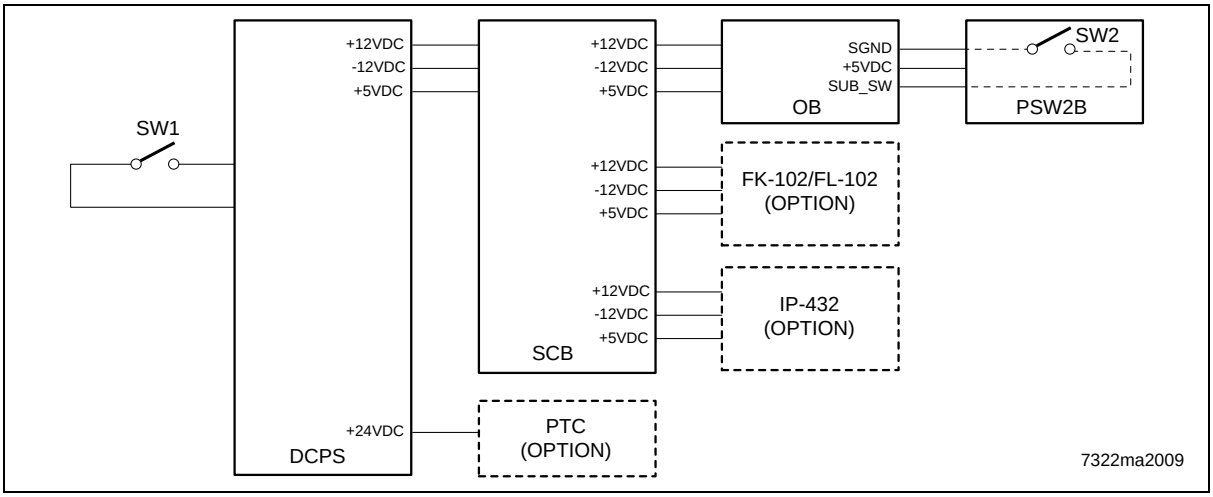
C. DCPS (DC power source)

This supplies power to each unit, and also controls the ON/OFF state of the fixing heater lamp.

11.2 Components Operated When the Power Switch is ON

11.2.1 Components operated when the SW1 (Main power switch) is on

In the case of the 7145



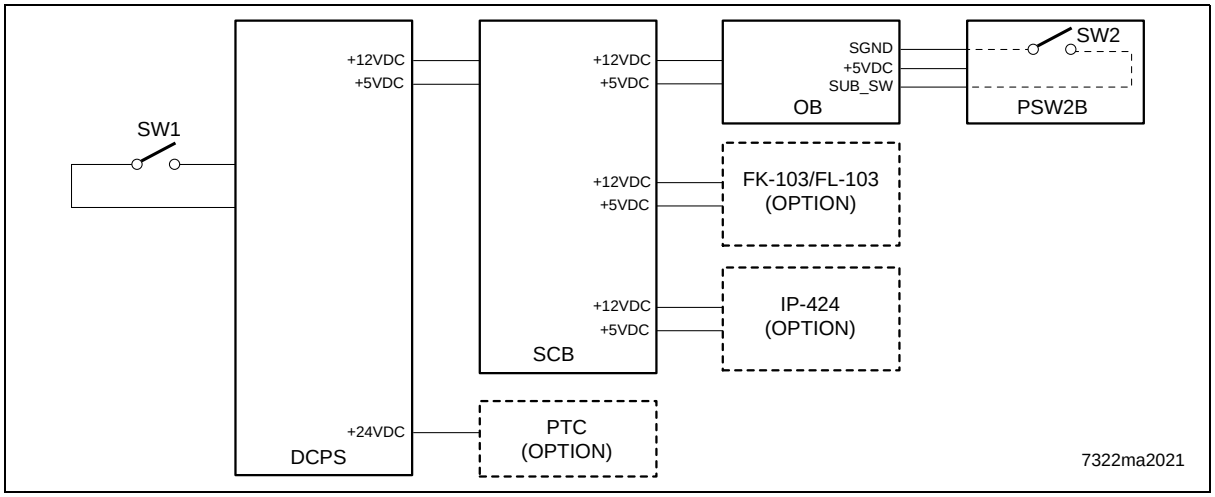
2 Setting the SW1 (Main power switch) to the ON position supplies AC power to the DCPS (DC power source) which in turn supplies +12DVC, -12VDC, and +5DVC to the SCB (System control board). The DCPS also supplies +5DVC to the OB (Operation board) through the SCB.

When the PTC (Internal heater) is provided as an option for service parts, according to the setting of the 25 mode DIP SW16-2, +24VDC is supplied to the PTC (Heater) from the DCPS (DC power source).

If options such as a printer controller (IP-432) and/or fax control board (FK-102 Type A/FL-102) are installed, +12VDC, -12VDC and +5VDC are also supplied to these options through the SCB (System control board).

In the automatic start-up mode, the same operation is made consecutively as when the SW2 (Sub power switch) is turned on according to the discretion of the SCB (System control board).

△2 In the case of the 7235/7228/7222



△2 Setting the SW1 (Main power switch) to the ON position supplies AC power to the DCPS (DC power source) which in turn supplies +12DVC and +5DVC to the SCB (System control board). The DCPS also supplies +5DVC to the OB (Operation board) through the SCB.

When the PTC (Internal heater) is provided as an option for service parts, according to the setting of the 25 mode DIP SW16-2, +24VDC is supplied to the PTC (Heater) from the DCPS (DC power source).

If options such as a printer controller (IP-424) and/or fax control board (FK-103/FL-103) are installed, +12VDC and +5VDC are also supplied to these options through the SCB (System control board). However, when the LAN cables are not connected with none of these options provided, a part of the section within the SCB (System control board) is not supplied with +5 VDC.

In the automatic start-up mode, the same operation is made consecutively as when the SW2 (Sub power switch) is turned on according to the discretion of the SCB (System control board).

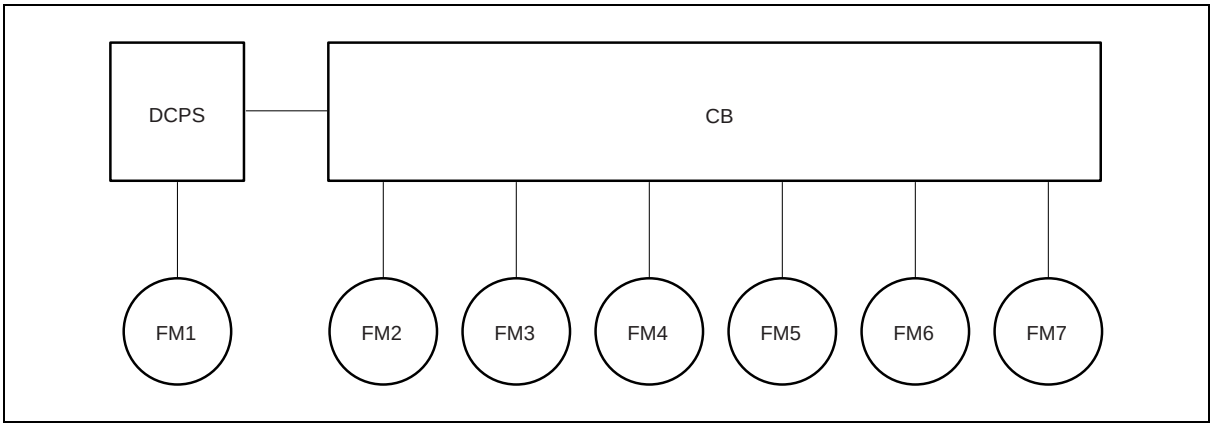
11.2.2 Components operated when the SW2 (Sub power switch) is on

△2 The SW2 (Sub power switch) is located on the PSW2B (Power SW2 board). Upon the SW2 on, an ON signal is sent from the SW2 to the SCB (System control board) through the OB (Operation board). As a result, the SCB sends a control signal to the DCPS (DC power source), thus causing the DCPS to supply +12VDC, -12VDC (7145 only) and +5VDC to all of the boards and options, including the CB (Main body control board).

The SCB (System control board) then sends to the DCPS (DC power source) a control signal that causes the DCPS to generate +24VDC. This 24VDC power is supplied to all of the drive boards and options.

11.3 Fan Control

11.3.1 Composition of the cooling fan



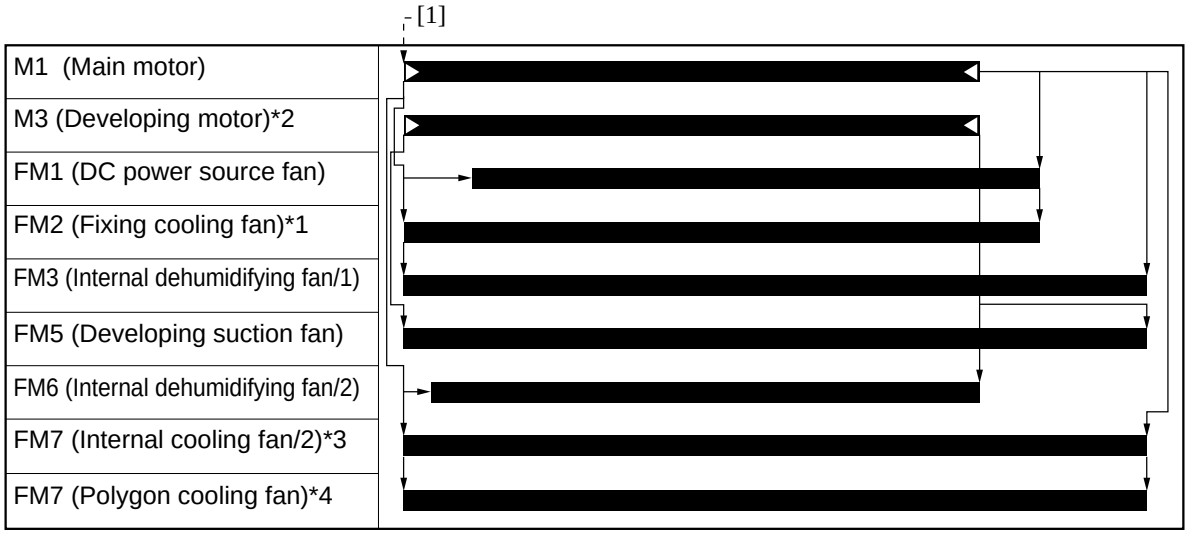
△2

Symbol	Name	Function or method
FM1	DC power supply cooling fan	Cooling of the DCPS (DC power source)
FM2*1	Fixing cooling fan	Preventing the ends of the fixing roller from getting overheated
FM3	Internal dehumidifying fan/1	Prevention of internal dew condensation, removal of internal ozone, and prevention against internal temperature getting too high
FM4	Internal cooling fan/1	Cooling of the drum unit, the write unit and their surroundings
FM5	Developing suction fan	Prevention against scattering of toner around the developing unit
FM6	Internal dehumidifying fan/2	Prevention of internal dew condensation, removal of internal ozone, and prevention against internal temperature getting too high
FM7*2	Internal cooling fan/2	Cooling of the interior of the developing unit
FM7*3	Polygon cooling fan	Cooling of the M5 (Polygon motor)

*1 7145/7235 only
*2 7145 only
*3 7235 only

11.3.2 Fan operation

A. Operation of fans other than FM4 (Internal cooling fan/1)



[1] START button (ON)

*1 Operation for a small sized paper (such as B5R, A5R, B6R, postcard, 5.5 x 8.5R, 16KR). For paper sizes other than these small ones, the fan turns on when the TH2 (Fixing temperature sensor/2) detects a temperature above 417°F, and turns off when it gets below 408°F

△2 *2 7145 only
In the case of the 7235/7228/7222, the operation of the fan, that is based on whether the M3 (Developing motor) turns ON or OFF while in the 7145, is based on whether the M1 (Main motor) turns ON or OFF.

△2 *3 7145 only

△2 *4 7235 only

B. Operation of FM4 (Internal cooling fan/1)

(1) ON/OFF timing

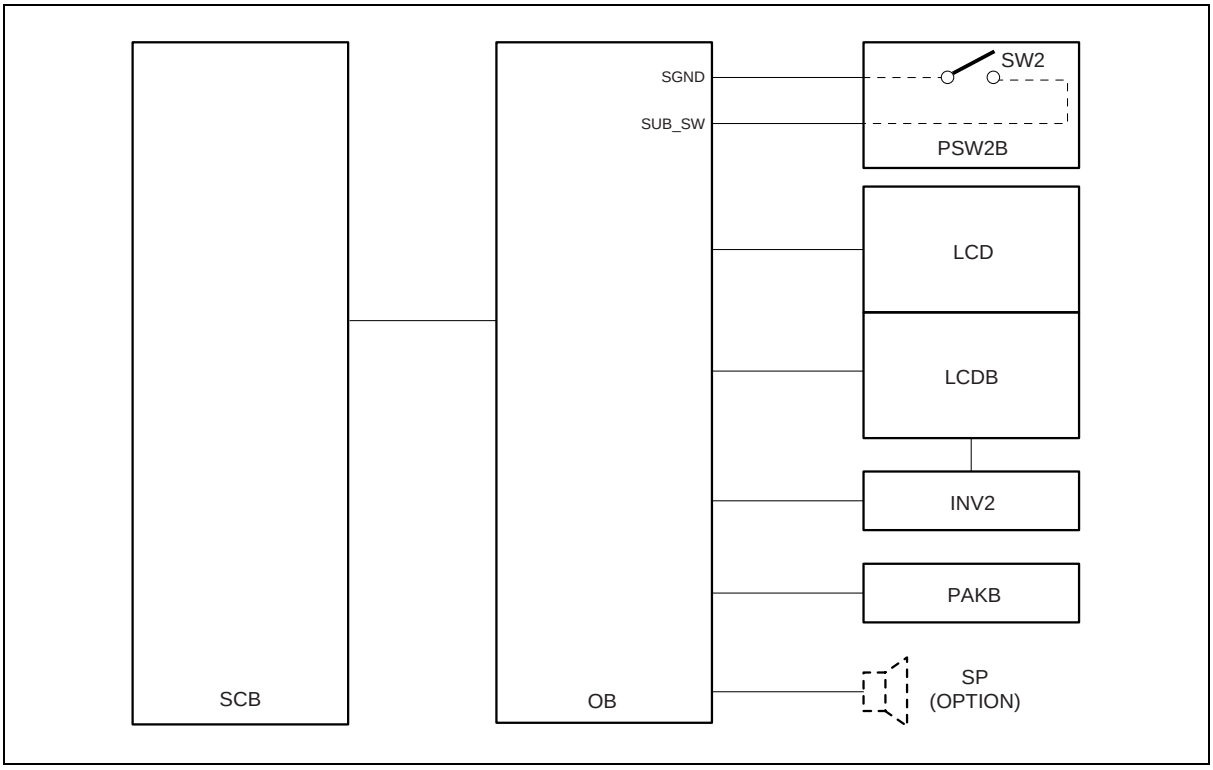
The FM4 (Internal cooling fan/1) is turned on when the machine-inside temperature sensor provided on the TCSB (Toner control sensor board) detects a temperature of 109°F, and turned off when the temperature gets below 105°F.

(2) Abnormality detection

The internal temperature sensor installed on the TCSB (Toner control sensor board) detects a temperature of 136°F, error code F22-1 is displayed on the operation unit and the machine is stopped.

11.4 Operation Unit Control

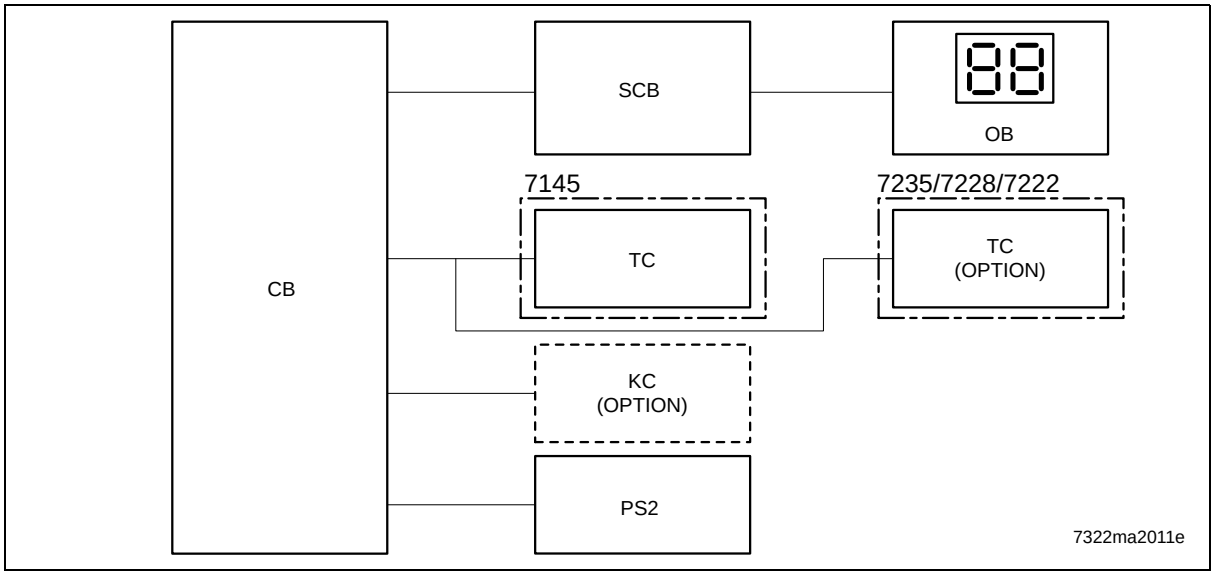
11.4.1 Composition of operation unit



Symbol	Name	Function or method
SW2	Sub power switch	Power switch for the operating section Does not function when the SW1 (Main power switch) is off.
PSW2B	Power SW2 board	LED packaging to display the on/off status of the SW1 (Main power switch)
LCD	LCD	Use to display various information
LCDB	Display board	Backlight for the LCD
INV2	Display inverter	Inverter used to drive the LCD (Display board)
PAKB	Panel key board	Touch switch board used to directly select items displayed on the LCD
△2 SP	Speaker	When an optional fax control board is installed, a monitor sound on the line while a call is being made.
OB	Operation board	Used to control the PSW2B (Power SW2 board), the LCD (Display board), the INV2 (Display inverter) and the PAKB (Panel key board), and also used to control the LED inside the OB and the ten-key

11.5 Counter Control

11.5.1 Counter composition



Symbol	Name	Function or method
OB	Operation board	Displays the number of copies by means of the LED.
TC	Total counter (7145 provided as a standard equipment) (7235/7228/7222 optional)	Displays the total number of copies. This is a mechanical counter driven by an electric signal.
KC	Key counter (optional)	A counter used to make copying unavailable after the specified number of copies is counted This is a mechanical counter driven by an electric signal.
PS2	Fixing exit sensor	Detects paper at the fixing exit. This information becomes a control signal source for each counter. Photosensor + actuator

11.5.2 Counter operation

This machine uses the following two software counters to count the number of copies. However, the content of the number display counter on the OB (Operation board) may differ depending on the operating condition of the machine.

A. Paper feed counter

This counter increments when the 1st paper feed for the next copy comes ON.

B. Paper exit counter

This counter increments when the PS2 (Fixing exit sensor) goes ON → OFF.

C. Number display counter on the OB (Operation board)

Normal operation	Jam
Indicator shows a count from the paper feed counter.	Indicator shows a count from the paper exit counter.

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III DISASSEMBLY/ASSEMBLY

⚠Caution:
- **Make sure the power cord of the copier is unplugged from the power outlet before disassembly or assembly.**

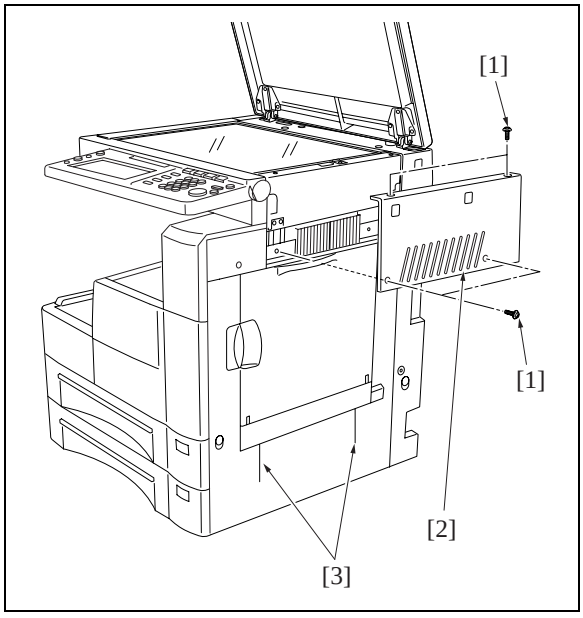
1. EXTERNAL SECTION

1.1 Replacing the Ozone Filter

⚠2 A. Periodically replaced parts/cycle
- Ozone filter: Every 240,000 copies (7145)
- Ozone filter: Every 200,000 copies (7235/7228/7222)

B. Procedure

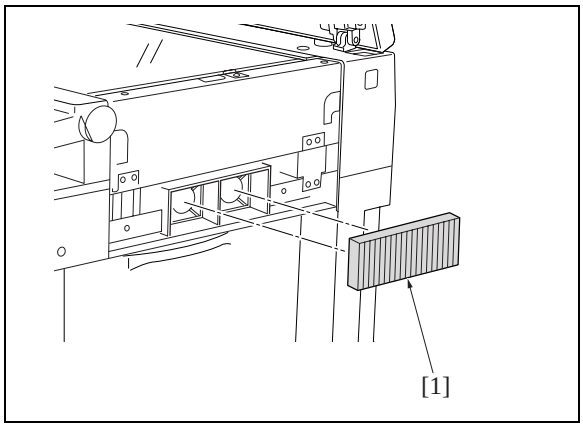
1. Remove the 4 screws [1], and remove the scanner exterior/R [2].



Note:
- If an unusual noise is emitted when you open or close the bypass tray, clean the ADU door rib [3] with alcohol.

2. Remove the ozone filter [1].

3. Reinstall the above parts following the removal steps in reverse.



Note:
- When installing the ozone filter, take care not to break it.

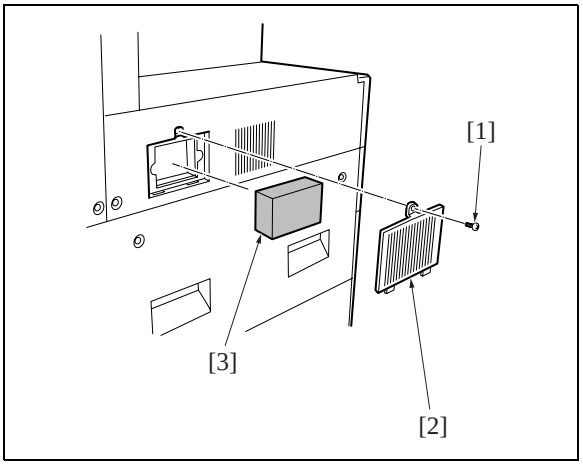
1.2 Replacing the Filter Cover Assembly & Suction Filter/A

⚠2 A. Periodically replaced parts/cycle

- Suction filter/A: Every 120,000 copies (7145)
- Suction filter/A: Every 100,000 copies (7235/7228/7222)
- Filter cover assembly: Every 120,000 copies (7145)
- Filter cover assembly: Every 100,000 copies (7235/7228/7222)

B. Procedure

1. Remove the screw [1], then remove the filter cover assembly [2].
2. Remove the suction filter /A [3].
3. Reinstall the above parts following the removal steps in reverse.

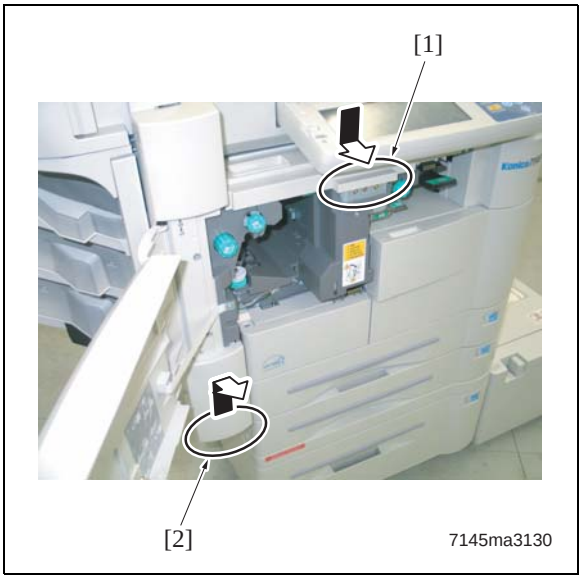


Note:

- When installing the suction filter/A, be sure to install it so that the white filter face is turned to the inside of the main body.

Note:

- When an elevator tray unit is fitted, perform the following to access the filter section.
- While pressing [1], lift up [2], and pull out the elevator tray unit and the horizontal conveyance unit. Do not remove the finisher.
  To remove the finisher, see [III. DISASSEMBLY/ASSEMBLY] of the finisher section.



2. DRIVE SECTION

2.1 Removing and Reinstalling the Motor Units (Main, Fixing, Feed, Developing)

⚠Caution:

- **Be sure to remove the drum unit from the main body before removing or reinstalling the main motor unit. If the drum unit is in place at this time, the drum will rotate when you install or remove the drum rotating plate, resulting in possible damage to the cleaning blade.**

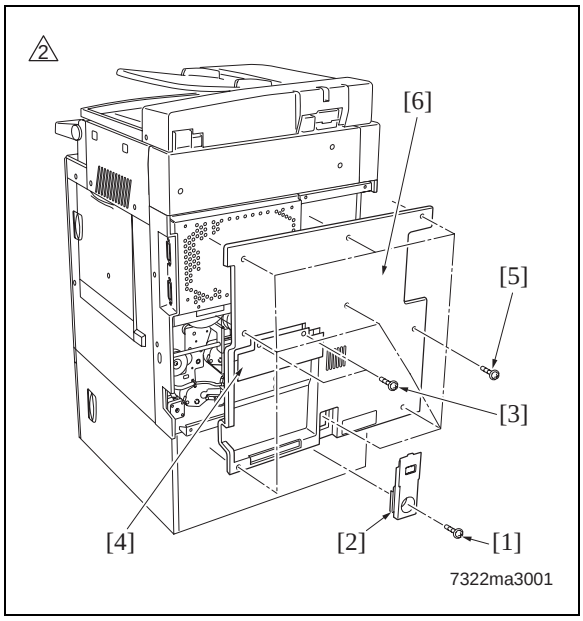
A. Procedure

1. Remove the developing unit and drum unit from the main body.

△2 *2.* Remove the screw [1], and remove the cord cover/B [2].

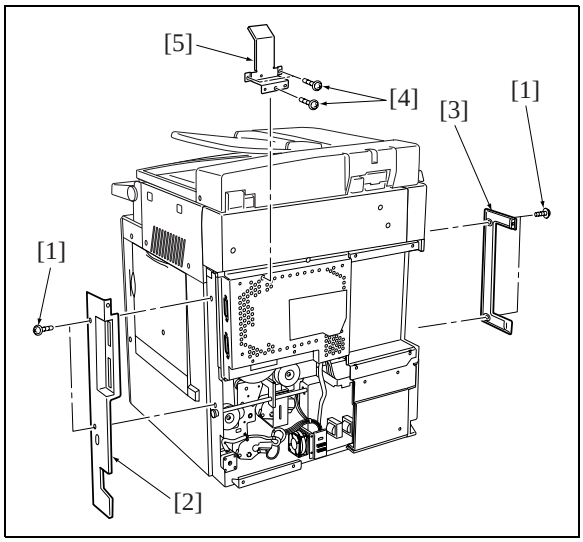
△2 *3.* Remove the 2 screws [3], and remove the cord cover/A [4].

△2 *4.* Remove the 9 screws [5], and remove the rear cover [6].



5. Remove the 2 screws [1], and remove the rear cover/R [2], the rear cover/L [3].

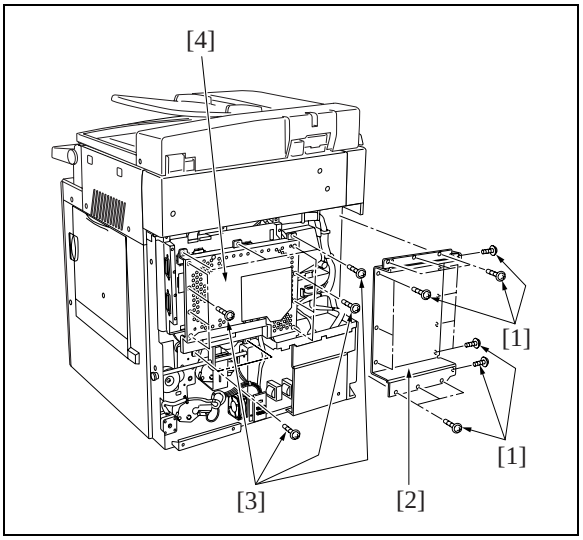
6. Remove the 3 screws [4], and remove the wire-bundle guide plate [5].



III DIS./ASSEMBLY

△2 *7.* Remove the 15 screws [1], and remove the board cover/D [2] (7145 only).

8. Remove the 13 screws [3], and remove the board cover/A [4].

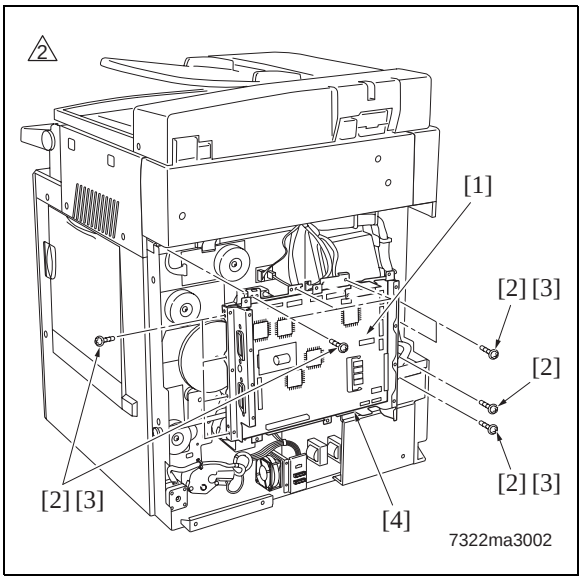


9. Remove the various wiring connectors from the SCB (System control board) [1].

Note:

- Be very careful when handling the ribbon cable connector from the SCB (System control board). See “2.4 Removing the ribbon cable” and “2.5 Installing the ribbon cable”.

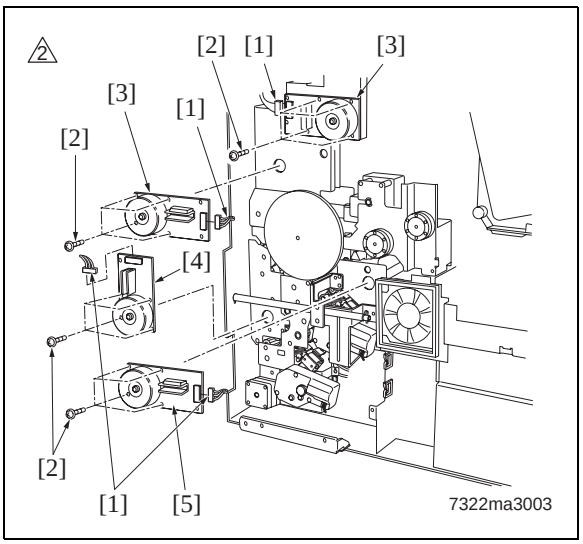
△2 *10.* Remove the 12 screws [2] (7145) or the 11 screws [3] (7235/7228/7222), and remove the system control board unit [4].



11. Disconnect the connectors from each motor unit [1].

△2 *12.* Remove the 4 screws [2], then remove each motor unit [3], [4] (7145 only), [5].

13. Reinstall the above parts following the removal steps in reverse.



2.2 Replacing the Registration Clutch

⚠Caution:

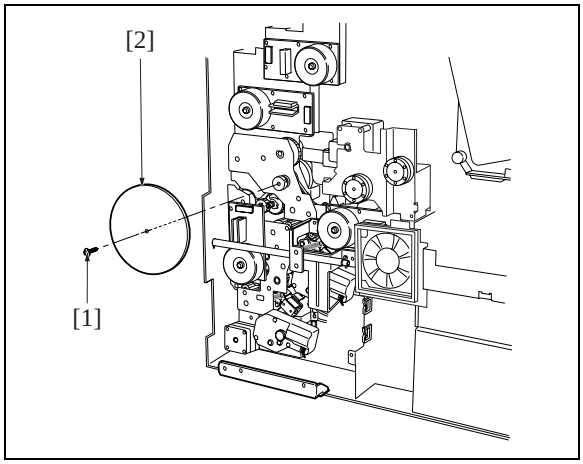
- **Be sure to remove the drum unit from the main body before carry out the following procedure. If the drum unit is in place at this time, the drum will rotate when you install or remove the drum rotating plate, resulting in possible damage to the cleaning blade.**

A. Procedure

1. Remove the system control board unit.

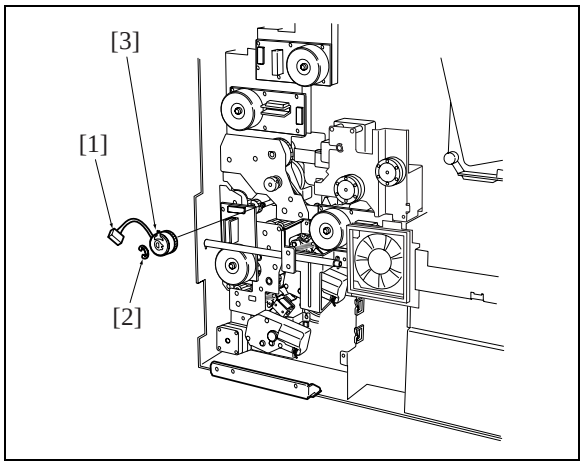
- For removal procedure, see "2.1 Removing and reinstalling the motor units (main, fixing, feed, developing)".

2. Remove the set screw [1], and remove the drum rotating plate [2].



3. Remove the clutch connector [1].

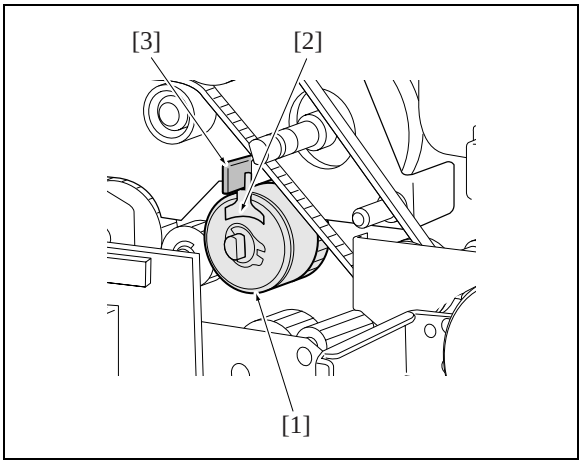
4. Remove the E-ring [2]. Pull the registration clutch [3] toward you and rotate it to remove.



5. Reinstall the above parts following the removal steps in reverse.

Note:

• When installing the registration clutch [1], be sure to set the groove of the clutch detent in the stopper [3].



2.3 Replacing the Loop Clutch

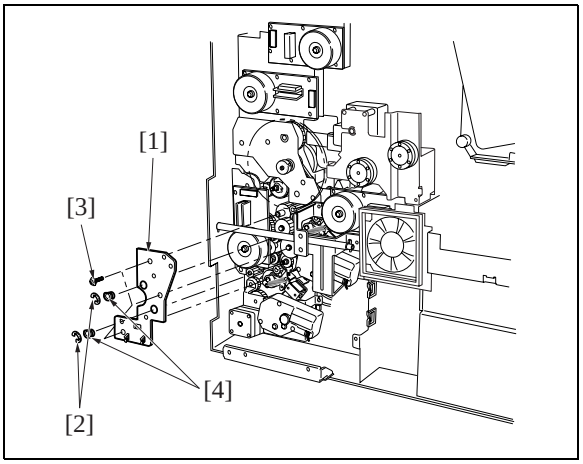
A. Procedure

1. Remove the system control board unit.

• For removal procedure, see "2.1 Removing and reinstalling the motor units (main, fixing, feed, developing)".

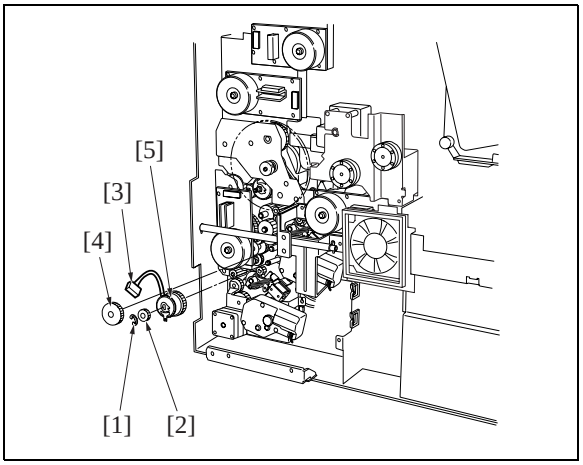
2. Remove the wire bundle from the clamp on the conveyance drive panel [1].

3. Remove the 2 E-rings [2], 3 screws [3] and 2 bearing [4] , and remove the conveyance drive panel [1]. (Do not remove the rotation prevention screws on the clutch.)



4. Remove the E-ring [1], then remove the gear [2] and the connector [3], remove the gear [4] at the front, and then remove the clutch [5].

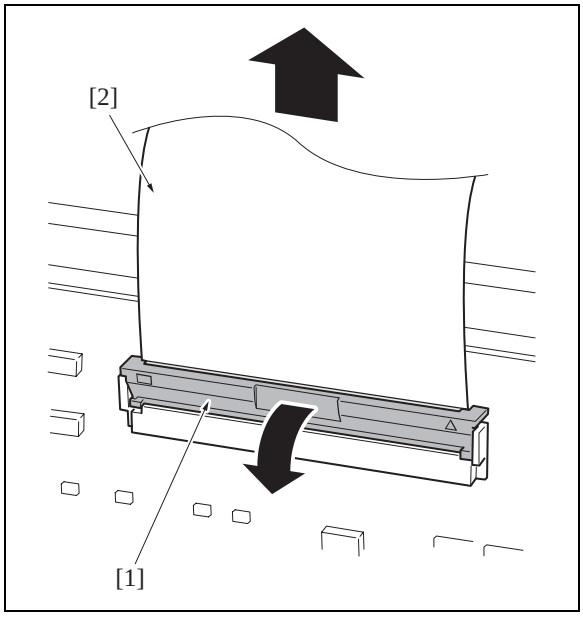
5. Reinstall the above parts following the removal steps in reverse.



2.4 Removing the Ribbon Cable

A. Procedure

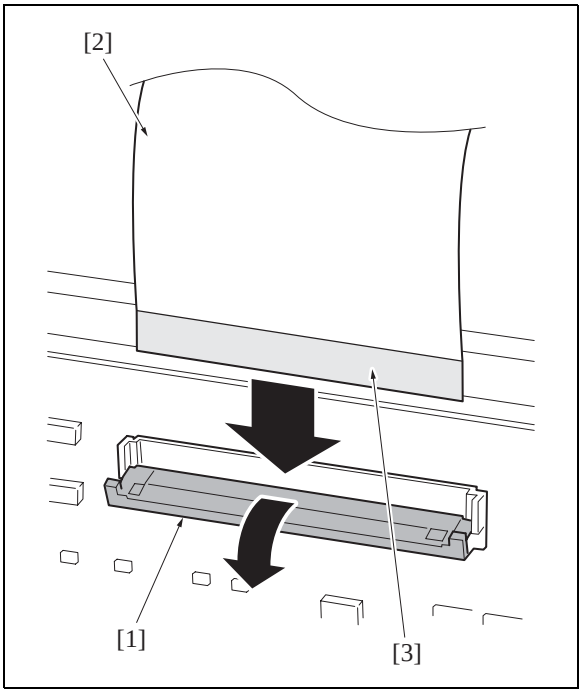
1. Move the lock lever [1] forward to release the lock, then pull out the ribbon cable [2].



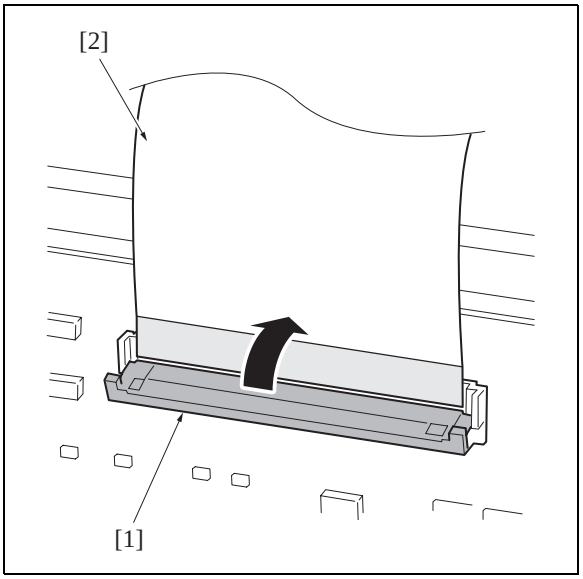
2.5 Reinstalling the Ribbon Cable

A. Procedure

1. Move the lock lever [1] forward, then insert the ribbon cable [2] firmly into the connector while ensuring that the conductive face of the ribbon cable [3] is positioned on the opposite side of the lock lever.



2. Push back the lock lever [1] to lock the ribbon cable [2].



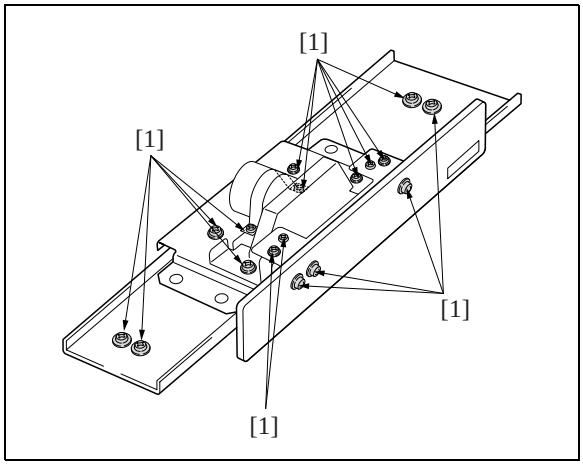
3. SCANNER SECTION

3.1 Screws That Must Not be Removed

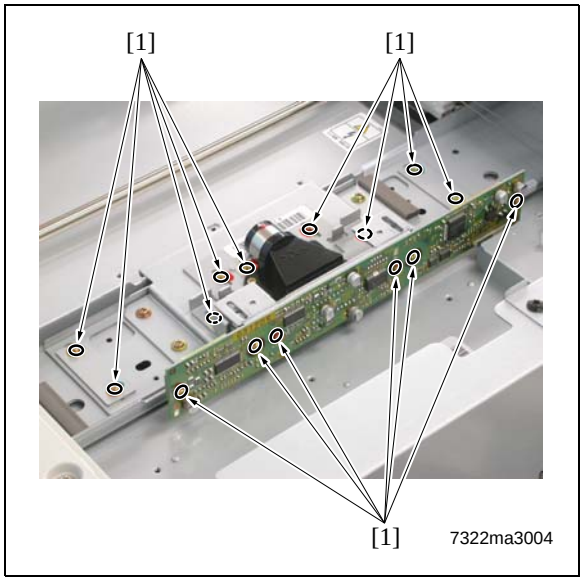
Note:

- The paint-locked screws [1] must not be removed. Be sure that you do not remove these screws.

In the case of the 7145



△2 In the case of the 7235/7228/7222



3.2 Adjusting the Angle of the Operation Unit

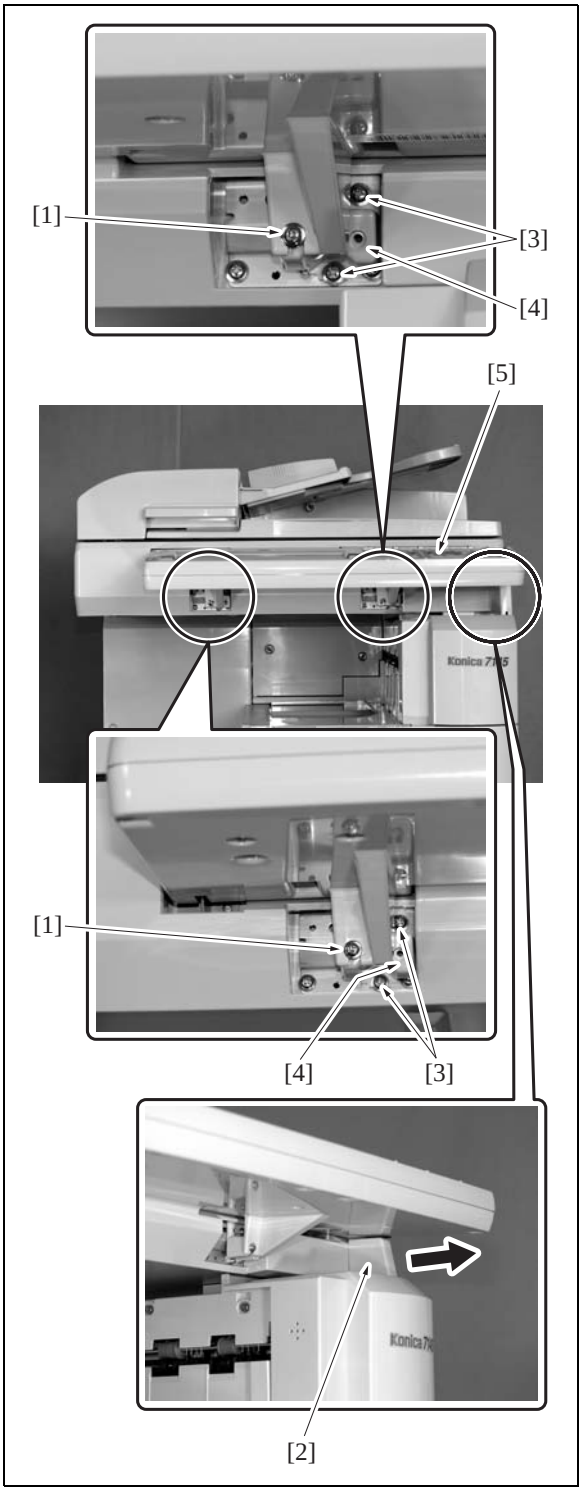
A. Procedure

1. Remove the 2 screws [1].
2. Remove the operating section stopper [2].
3. Remove the 2 screws [3] for each position. And then install the angle adjustment member [4] in the specified position.
   The angle adjustment member corresponds to 7 degrees for the right position and to 15 degrees for the left position. However, this is not used for the setting of 33 degrees.
4. Change the installation direction of the operating section stopper [2] and set it at the position for 7 or 15 degrees. However, this is not used for the setting of 33 degrees.

Note:

- The angle of the operation unit can be adjusted at the following 3 stages: However, the setting at 33 degrees is available only when combined with the paper exit tray.

5. Install the operating section stopper [2].
6. Fasten the operation unit [5] with the 2 screws [1].

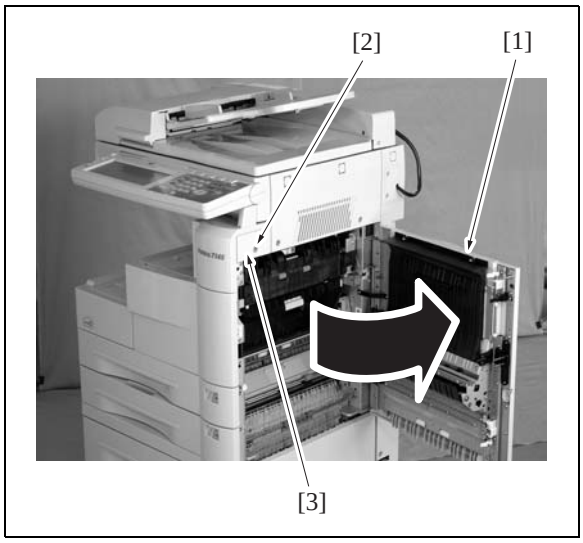


3.3 Removing the Operating Unit

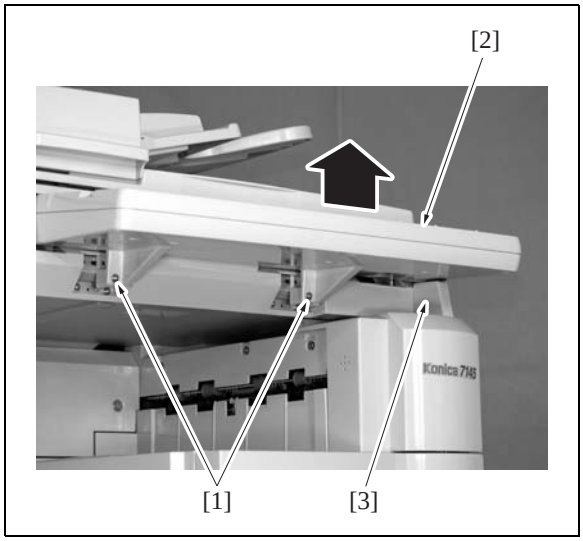
A. Procedure

1. Open the ADU door [1].

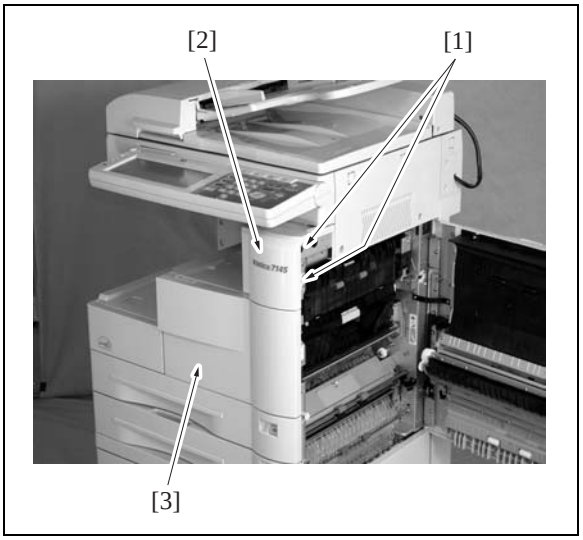
2. Remove the screw [2] and remove the right side cover /F [3].



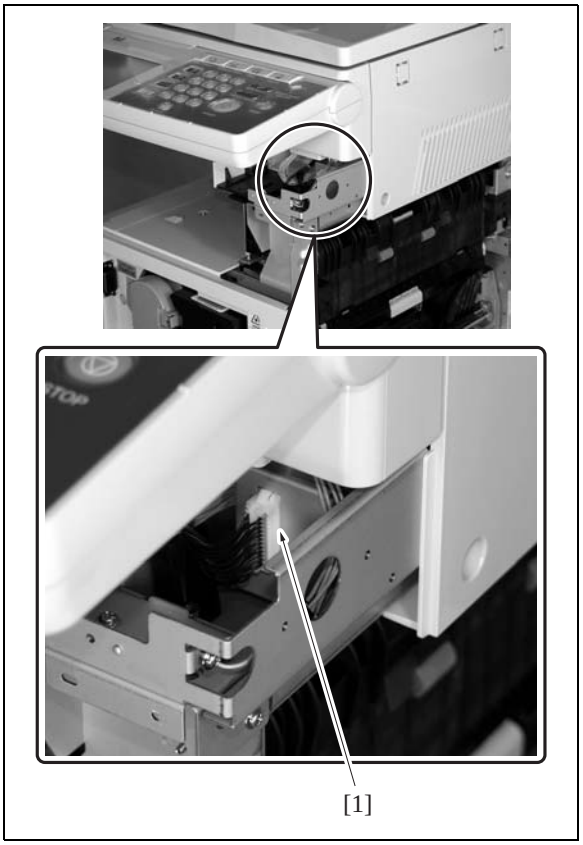
3. Remove the 2 angle adjusting screws [1], and remove the operating section stopper [3] while lifting up the operating section [2].



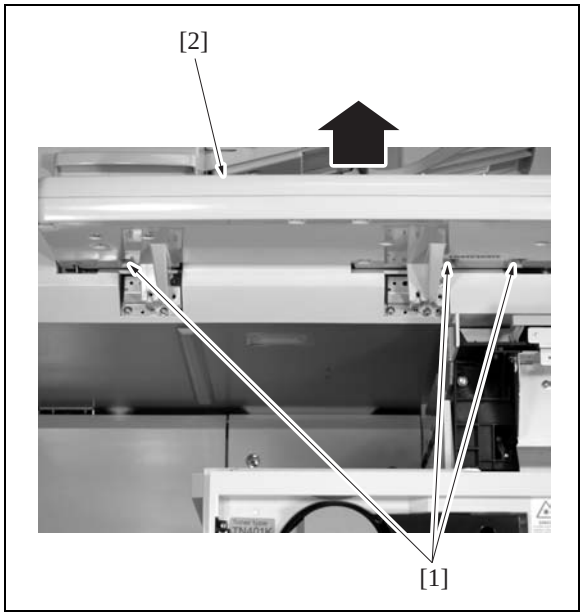
4. Loosen the 2 screws [1] and remove the front cover [2] and the front door [3].



5. Remove the connector [1].



6. Remove the 3 screws [1], and remove the operating section [2] by pulling it out to this side.
7. Reinstall the above parts following the removal steps in reverse.

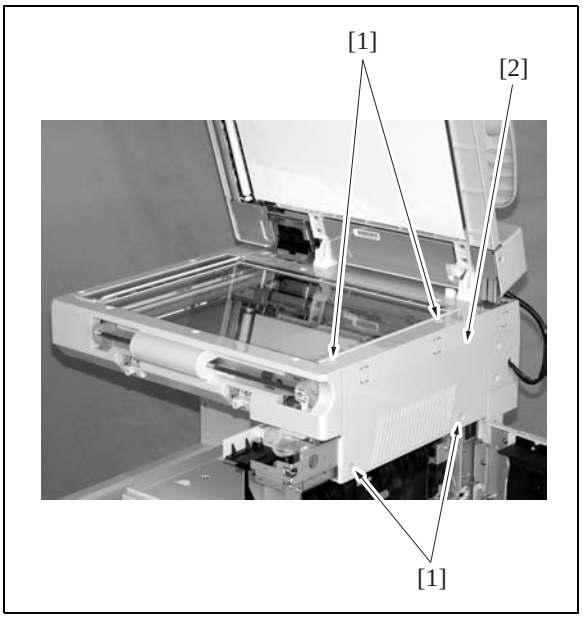


3.4 Removing the Platen Glass/ Slit Glass

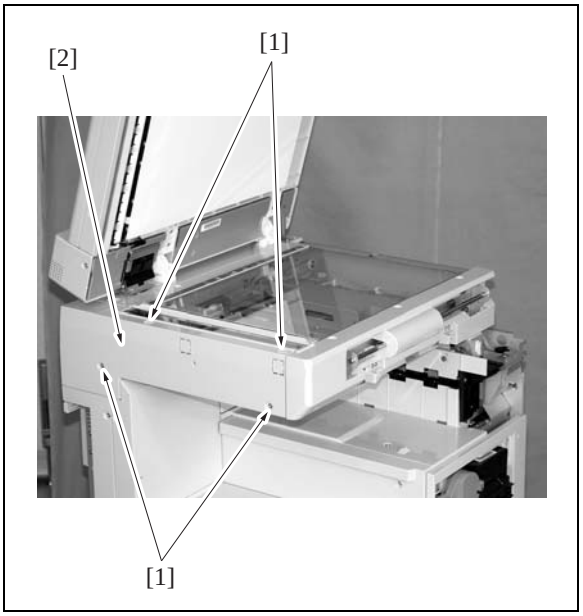
When removing the platen glass, execute only the steps 1, 3, 7, 8 and 9 in the following procedure. For the slit glass, execute all of the steps 1 to 9.

A. Procedure

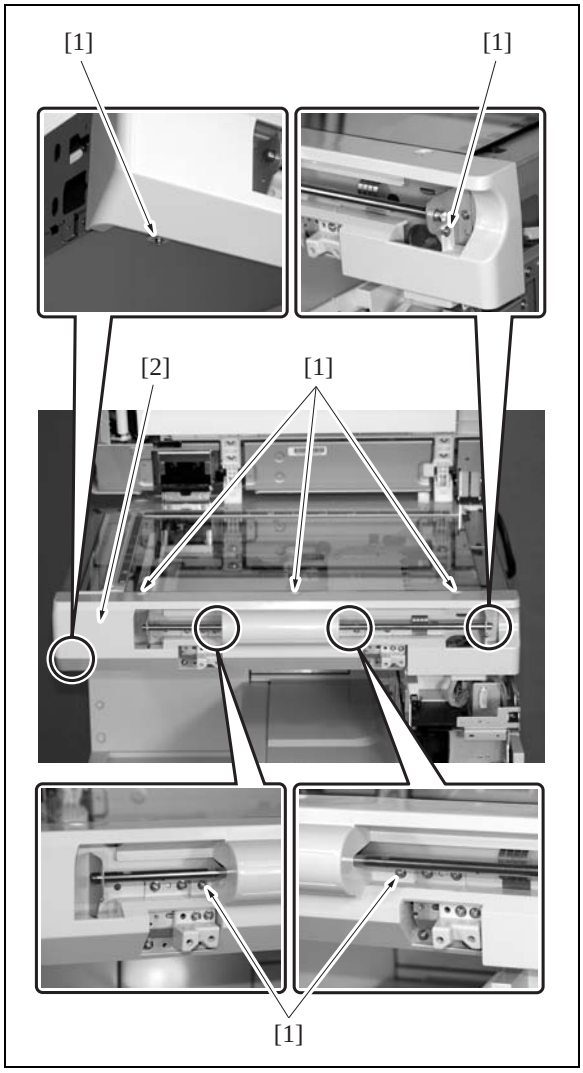
1. Open the RADF.
2. Remove the operation unit.
3. Remove the 4 screws [1] and remove the scanner exterior/R [2].



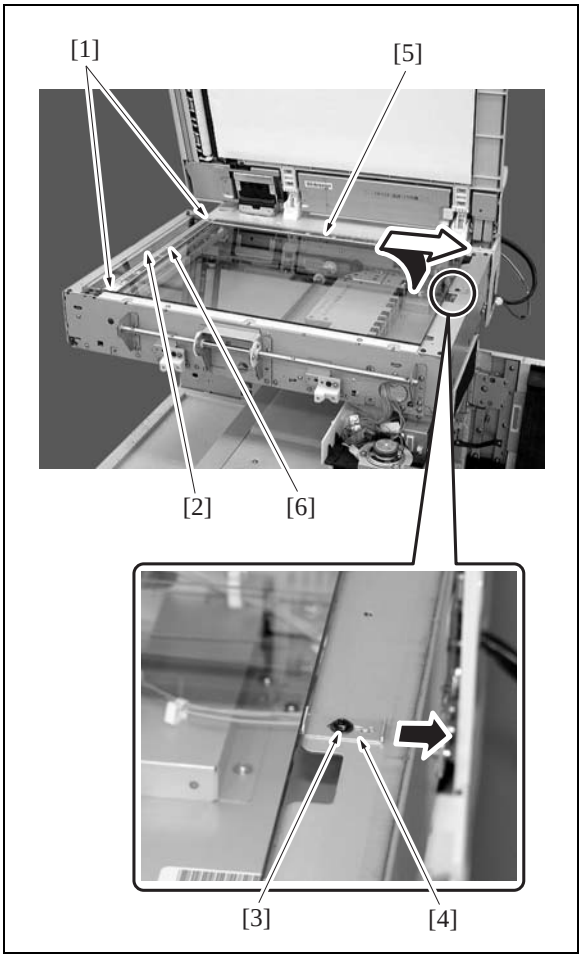
4. Remove the 4 screws [1] and remove the scanner exterior/L [2].



5. Remove the 7 screws [1] and remove the scanner exterior/F [2].



6. Remove the 2 screws [1] of the slit glass pressure plate and remove the slit glass [2].
7. Loosen the screw [3] and slide the glass pressure plate [4] to the paper feed side.
8. Lift up once the platen glass [5]. And then slide it to the paper feed side to remove it.



Note:

- Be careful not to stain the white reference plate attached to the back of the scale plate [6] provided on the paper feed side of the platen glass [5].
- When the white reference plate gets smudged, wipe it thoroughly with a clean cloth.

9. Reinstall the above parts following the removal steps in reverse.

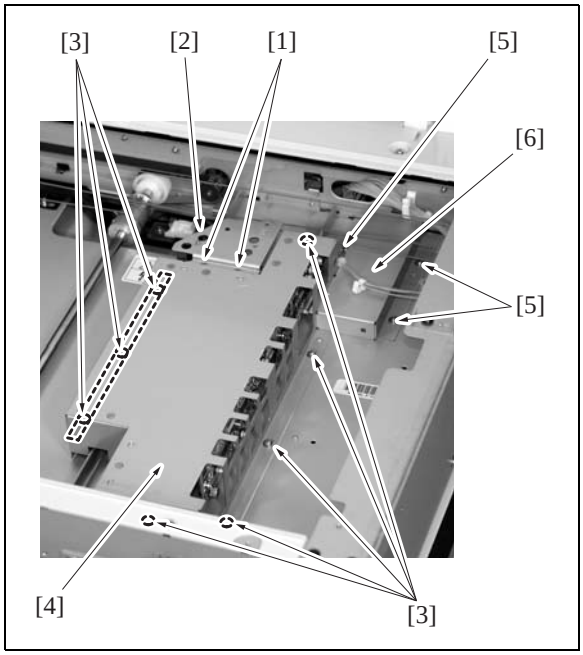
Note:

- When installing the platen glass [5], be sure to fasten it securely while pressing the glass pressure plate [4] to the platen glass [5].
- The slit glass is distinguished between the front and the rear. Be sure to set the slit glass [2] so that a black dot on its side comes in the rear right side when you see the 7145 from the front side. When attaching the slit glass holding plate with the 2 screws [1], tighten these screws while pressing the slit glass [2] onto the original glass [5] side.

3.5 Removing and Reinstalling the CCD Unit

A. Procedure

1. Remove the platen glass.
2. Remove the 2 screws [1], and remove the photo sensor fastener [2].
3. Remove the 8 screws [3], and remove the lens light blocking cover [4].
4. Remove the 3 screws [5], and remove the ribbon cable cover [6].



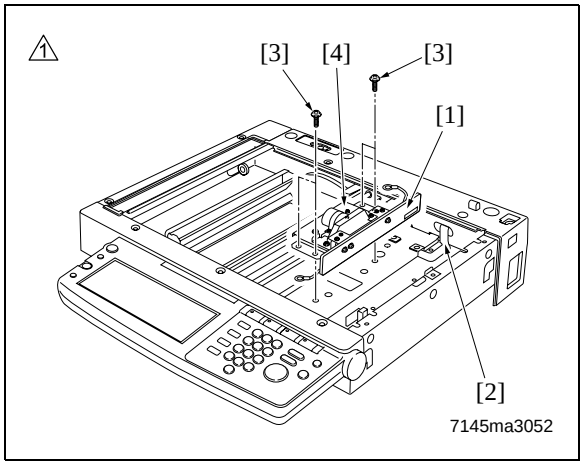
5. Remove the ribbon cable [2] from the ADB (A/D conversion board) [1].

Note:

- Be careful to avoid damage to the ribbon cable when removing it. When reinstalling it, be sure that it is securely in place.

⚠1 6. Remove the 4 screws [3], and remove the CCD unit [4].

7. Reinstall the above parts following the removal steps in reverse.



Note:

- Be sure to perform image adjustment after installing the CCD unit. (See “I Adjustment” section.)

3.6 Replacing Exposure Lamp

⚠Caution:

- **Do not touch the exposure lamp's lamp area with bare hands.**

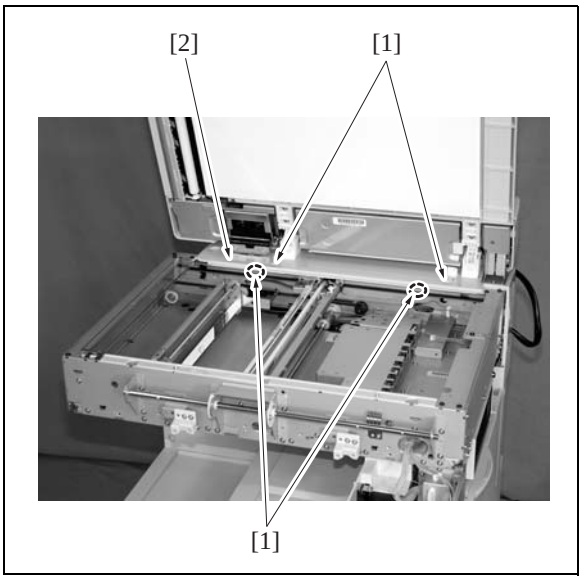
A. Procedure

1. Remove the RADF.

- For removing procedure, see the DF service manual.

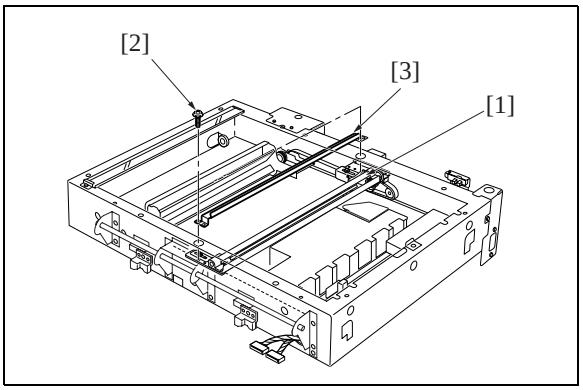
2. Remove the platen glass.

3. Remove the 4 screws [1], and remove the read cover/R [2].



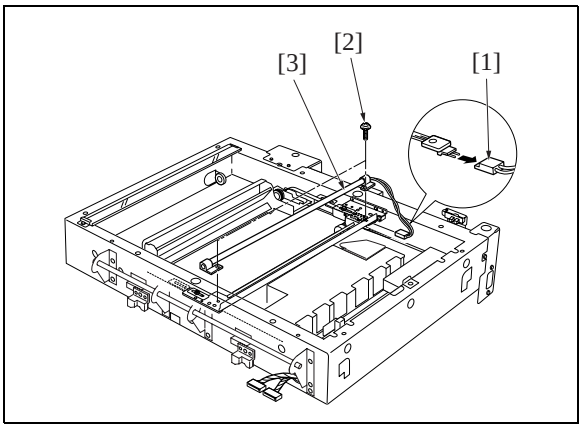
4. Shift the exposure unit [1] to the center of the main body frame.

5. Remove the 2 screws [2], and remove the auxiliary reflecting mirror [3].



6. Remove the 1 connector [1] and 2 screws [2]. Tilt and remove the exposure lamp [3].

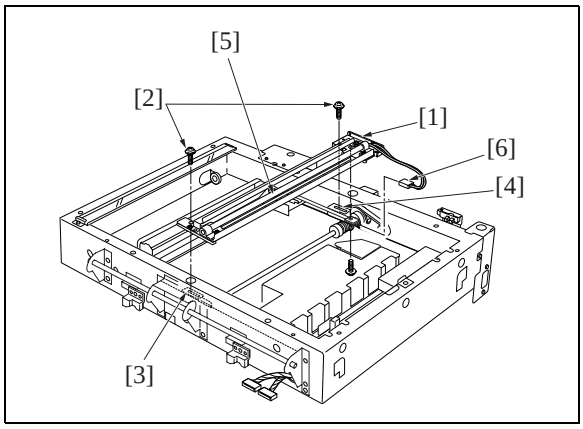
7. Reinstall the above parts following the removal steps in reverse.



3.7 Removing and Reinstalling the Exposure Unit

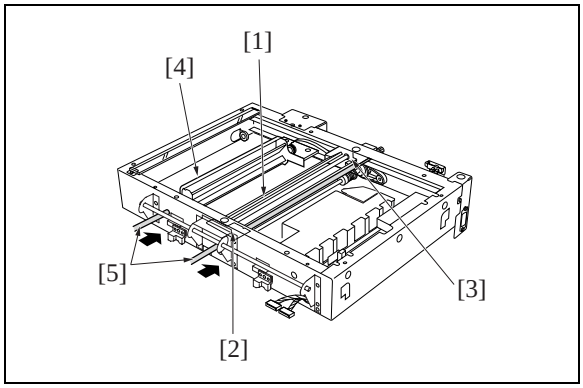
A. Removal procedure

1. Remove the RADF.
2. Remove the platen glass.
3. Remove the scanner cover/R.
4. Shift the exposure unit [1] to the center of the main body frame.
5. The exposure unit [1] is fixed in place by set screws fastened to the exposure unit mount fittings/F [3], /R [4] (1 screw in each fitting). Remove the 2 screws [2].
6. Tilt and slide the exposure unit [1] to remove it from the frame.
7. Disconnect the exposure lamp [5] connector [6].



B. Installation procedure

1. Fit the exposure unit into the main body.
2. Insert the front exposure unit mount fitting/F [2], /R [3] into the corresponding slits in the exposure unit.
3. Shift the V mirror unit [4] to the exit side. Through the front, insert the two optics unit positioning jig [5] so that they are at the installation location for the exposure unit. Pass the jig [5] through the V mirror unit [4] to fasten it in place. Position the exposure unit [1] by pushing it against the frame on the right side of the unit.



Note:

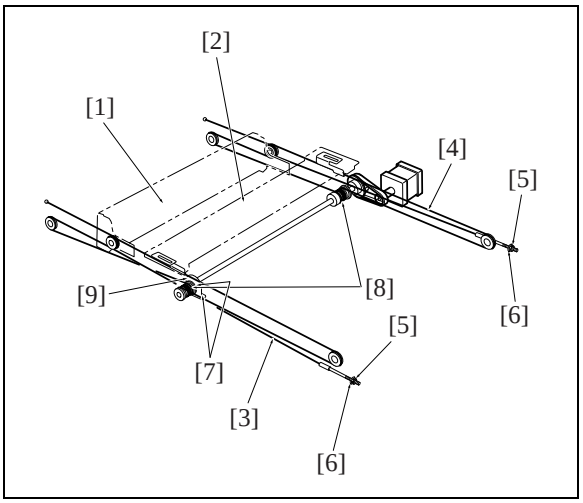
- Be sure to the use optics unit positioning jig when reinstalling the exposure unit.

4. Fasten the exposure unit mount fittings/F, /R into place (1 screw in each fitting).
5. Remove the optics unit positioning jig.
6. Finish installation by reversing the sequence of the removal procedure.

3.8 Removing the Optics Wire

A. Procedure

1. Remove the RADF.
2. Remove the platen glass.
3. Remove the scanner cover/R.
4. Shift the V mirror unit [1] to the paper exit side. Through the front, insert the optics unit positioning jig so that it is at the V mirror attachment location. Pass the jig through the V mirror unit [1] to fasten the it in place.
5. Remove the exposure unit [2].
6. Detach the nuts [5] and washers [6] from the ends of the optical wires/F [3], /R [4], and remove the wires/F [3], /R [4].
7. Remove the screws [7] holding the two drive pulley [8] bearings in place (two screws on each pulley), and remove the bearings [9].
8. Remove the optical wires/F [3], /R [4] from the drive pulleys.



3.9 Installing the Optics Wire

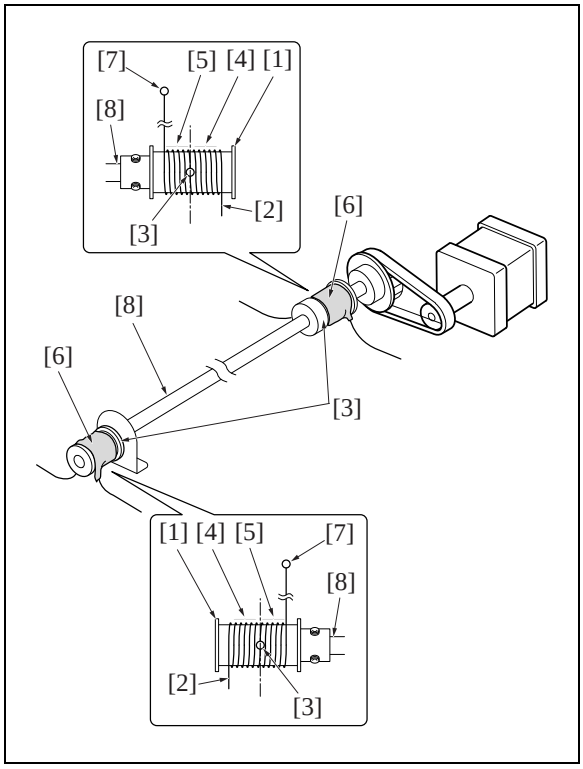
A. Procedure

1. Loosen the set screw of the drive pulley [1] on one side so that the drive pulley can rotate freely against the pulley shaft.

2. Fit the metal ball [3] (midway along each optical wire [2]) into the mount opening on the drive pulley [1]. Starting from this position, wind 6 times [4] around the outside and 5 times [5] around the inside.

- Use the “F” exposure unit mount fitting (the fitting with the “F” printed on it) at the front, and use the “R” fitting at the rear.
- The end with the metal ball [7] at the tip winds around the inside of the pulley shaft [8].
- Wind so that the two ends of the wire come off the top of the pulley.

3. After winding the wires [1], fasten them in place (with tape [6], etc.) so that they cannot come off.

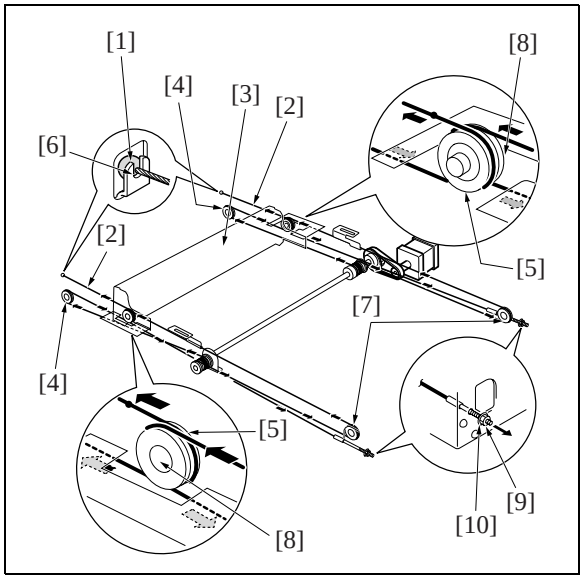


Note:

- When winding wire around pulleys, be sure that the winds are close. Be careful to avoid overlap.
- When changing the wire, be sure to use the optics unit positioning jig.

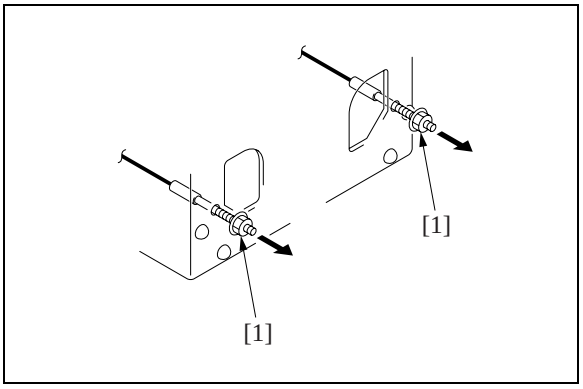
4. On the metal ball [1] side, pass the optical wire [2] so that it passes under the V mirror unit [3], through the paper exit side pulley [4], and through the inside pulley [5] on the V mirror unit. Hook the end of the wire onto the notch [6] on the frame.

5. On the right side, pass the wire so that it passes through the right side pulley [7], passes over the pulley [8] on the outside of the V mirror unit, and passes under the V mirror unit. Fasten the end to the right side frame with the nut [9] and washer [10].



III DIS./ASSEMBLY

6. Position the V-mirror unit by using the optics unit positioning jig.
7. After temporary fastening, use a spring balancer to apply 1.3 ~ 1.7kg of tension to the front and rear optical wires in the arrow direction, then fully tighten the nuts [1].
8. Fasten the set screw of the drive pulley which has been loosened.
9. Using the optics unit positioning jig to install the exposure unit.
10. Remove the optics unit positioning jig.
11. Slide the exposure unit two or three times to make sure that it works correctly.
12. Finish installation by reversing the sequence of the removal procedure.



4. WRITE UNIT

4.1 Removing and Reinstalling the Write Unit

⚠Warning:

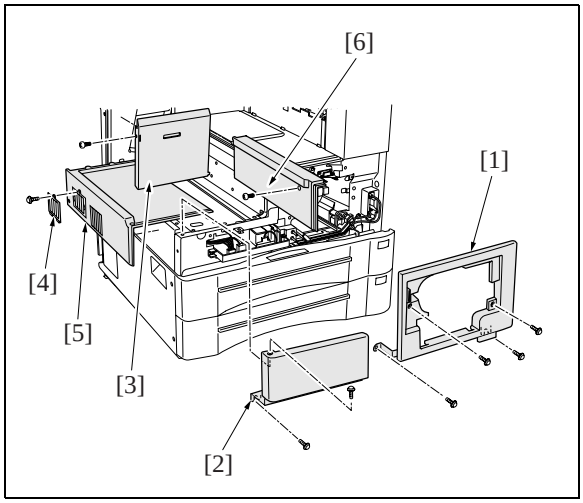
- **Never supply power while the write unit is out of its proper installed position.**
- **Do not open the cover of the write unit while power is being supplied. Shining of the laser beam on the eye may cause blindness.**

Note:

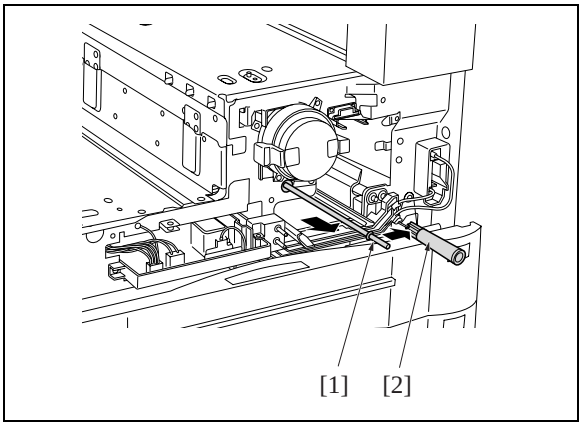
- When removing the write unit, take care to avoid touching with the write mirror and the dust proof glass. (Touching these areas may leave scratches and smudges.)
- When installing the write unit, confirm that the PET sheet at the end is seated correctly in the duct.
- After turning the main power switch OFF, wait at least two minutes before removing the write unit.

A. Procedure

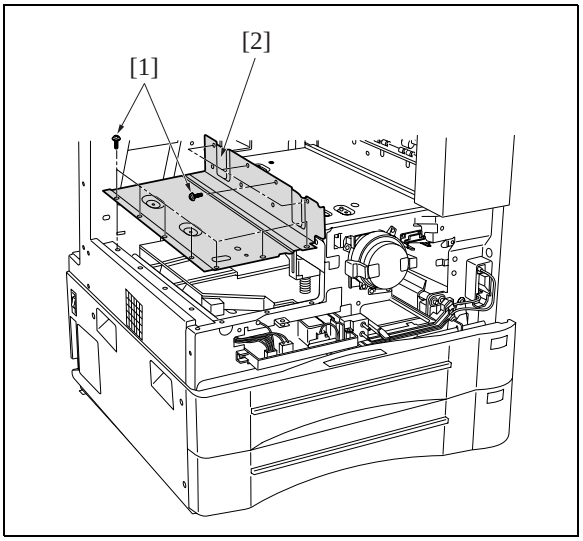
1. Open the front door and remove the developing unit and the drum unit.
2. Remove the exit tray.
3. Remove the front door.
4. Remove the main body cover/FR [1], the main body cover/FL [2], the side cover/R [3], the filter cover assembly [4], the main body cover/U [5] and the main body assist cover [6].



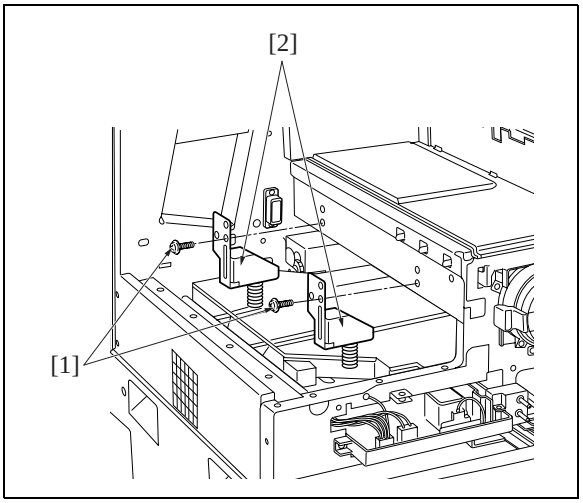
5. Remove the write cleaning knob [2] from the dust proof glass cleaning rod [1] and then puch the rod [1] to inside of main body.



6. Remove the 11 screws [1], and remove the write cover [2].



7. Remove the two write unit mount pieces [2] (each is held in place by screw [1]).

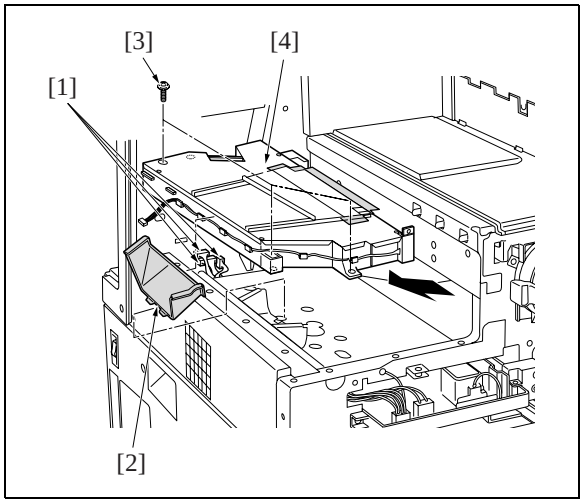


8. Disconnect the 3 connectors [1] .
9. Remove the air duct [2].
10. Remove the 3 screws [3] (SEMS II: long screws), and remove the write unit [4] by pulling it to the paper exit side.

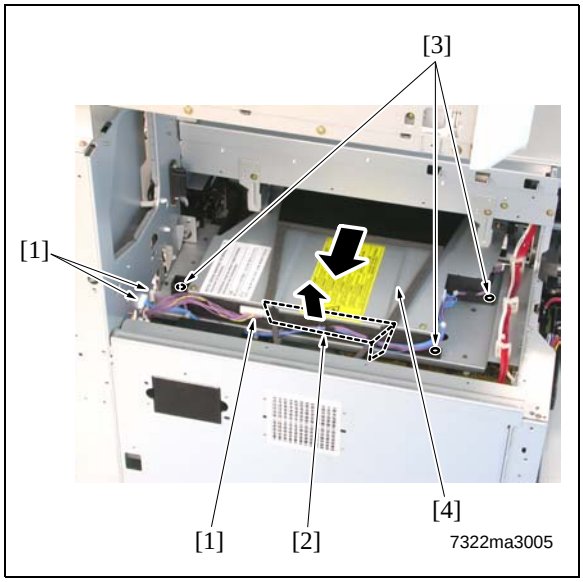
Note:

- When removing the write unit, take care to avoid touching with the write mirror and the dust proof glass.

In the case of the 7145



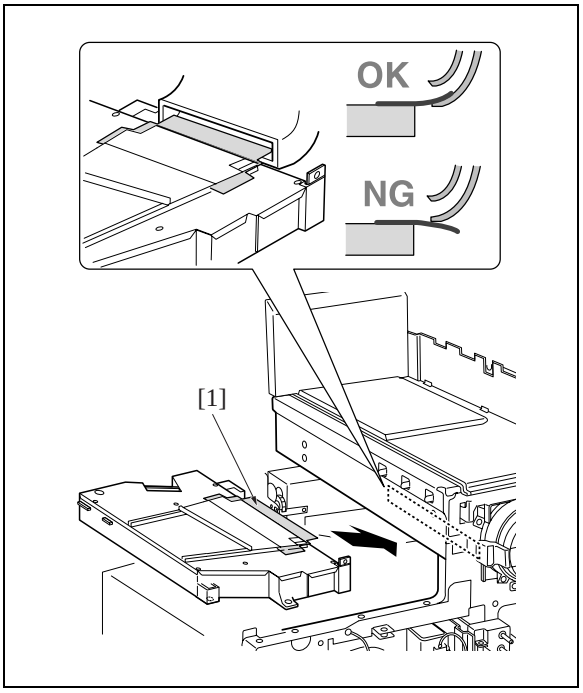
△2 In the case of the 7235/7228/7222



11. Reinstall the above parts following the removal steps in reverse.

Note:

- Reinstall the write unit while inserting the front edge of the cooling air guide sheet [1] into the specified position.



5. DRUM UNIT

5.1 Removing and Reinstalling the Drum Unit

⚠2 **A. Periodically replaced parts/cycle**

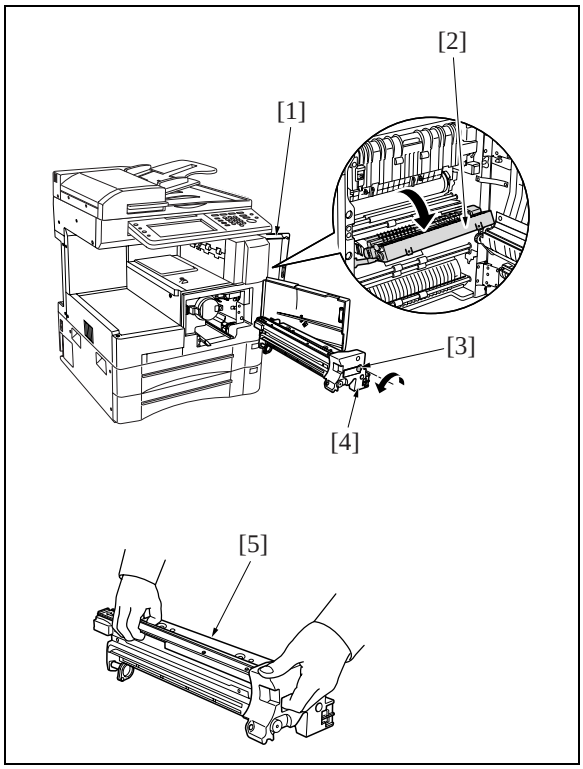
- Drum unit: Every 720,000 copies (7145)
- Drum unit: Every 600,000 copies (7235/7228/7222)

B. Procedure

1. Remove the developing unit.

2. Open the ADU door [1], and open the conveyance unit [2].

3. Loosen the screw [3], and gently pull the drum unit [4] out toward you until it stops. Then tilt it slightly and remove it.



Note:

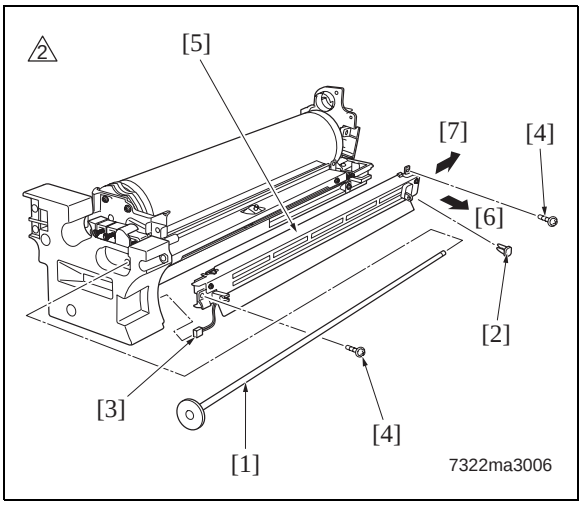
- When removing the drum unit, be sure to hold it at both ends to prevent a possible deformation of the drum unit.
- After removing the drum unit, close the drum cover and store the unit in a dark place.
- During removal and reinstallation work, never rotate the drum in the wrong direction (in the direction opposite to the direction it moves during normal copying). Rotating the drum in the reverse direction may cause scratches to the cleaning blade.
- When removing the drum unit, do not place your hand on the separation claw unit [5].

4. Reinstall the above parts following the removal steps in reverse.

5.2 Removing and Reinstalling the Charging Corona Unit

A. Procedure

1. Remove the drum unit from the main body.
2. Set the unit so the drum is to the top.
3. Remove the cleaning rod's [1] shaft stopper fitting [2], and pull out the cleaning rod [1].
4. Disconnect the connector [3] from the drum unit.
5. ⚠2 Remove the 2 screws [4] (7235/7228/7222 only).
6. ⚠2 Remove the back side (rear side) of the charging corona unit [5] in the arrow-marked direction [6] and remove it by sliding in the arrow-marked direction [7].
7. Reinstall the above parts following the removal steps in reverse.



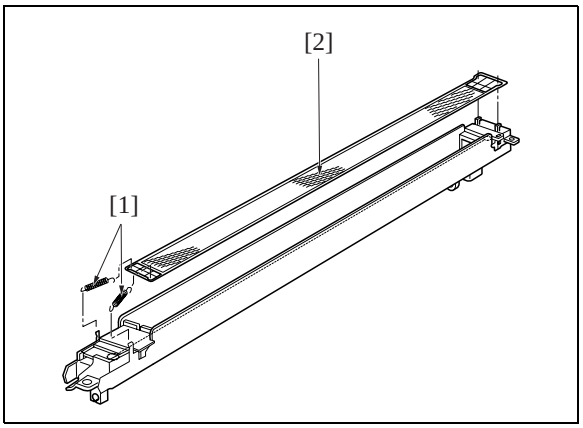
Note:

- Be careful not to bend excessively the charging corona pressure spring.

5.3 Removing and Reinstalling the Charge Control Plate

A. Procedure

1. Remove the drum unit from the main body.
2. Remove the charging corona unit. Move the charging cleaning block to its home position (at the rear side).
3. Remove the 2 charge control springs [1], and remove the charge control plate [2].
4. To clean: tap lightly with a cloth soaked in drum cleaner, then use a blower brush to remove remaining debris.
5. Reinstall the above parts following the removal steps in reverse.



Note:

- When reinstalling, be sure to set the charge control plate so that the spring held end is toward the front of the charging corona unit.

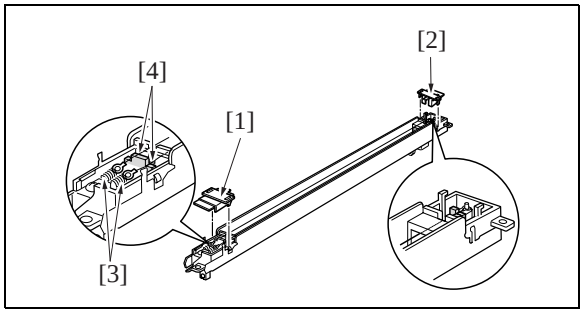
5.4 Replacing the Charging Wire

A. Procedure

1. Remove the drum unit from the main body.
2. Remove the charging corona unit. Move the charging cleaning block to its home position (at the rear side).
3. Remove the charge control plate.
4. Remove the 2 charging covers (charging cover/F [1], and charging cover/R [2]).

⚠2 5. In the case of the 7145
Remove the 2 springs [3], and remove the 2 charging wires [4].
In the case of the 7235/7228/7222
Remove the 2 springs [3], and remove the 1 charging wire [4].

6. To install the replacement wire: first fasten the rear end of the wire to the unit, then pass the wire through the charging cleaning block and fix it in place with the spring. Then complete the installation by reversing the steps above.
7. Finish installation by reversing the sequence of the removal procedure.



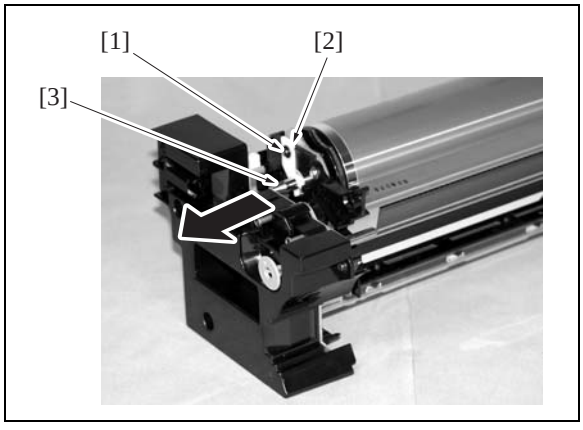
5.5 Removing and Reinstalling the Drum

⚠2 **A. Periodically replaced parts/cycle**

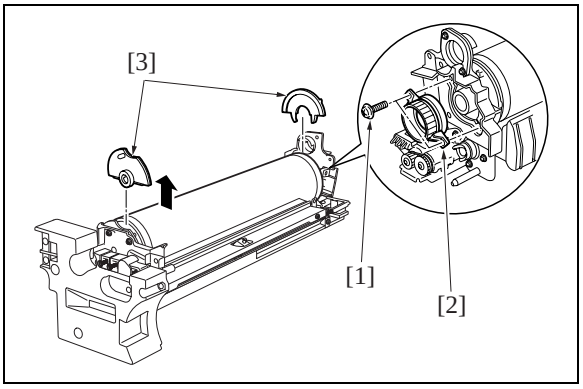
- Drum: Every 240,000 copies (7145)
- Drum: Every 200,000 copies (7235/7228/7222)

B. Removing procedure

1. Remove the drum unit from the main body.
2. Remove the charging corona unit from the drum unit.
3. Remove the screw [1] and the fixing material [2], and pull out the drum shaft [3].
When the drum shaft is hard to pull out, knock lightly at the rear end of the drum shaft.



4. Remove the 2 screws [1], and remove the drum bearing [2].
5. Remove the 2 semicircular seal blocks [3] (one on each end of the drum).
6. To remove the drum, lift it up and out from the front side.



Note:

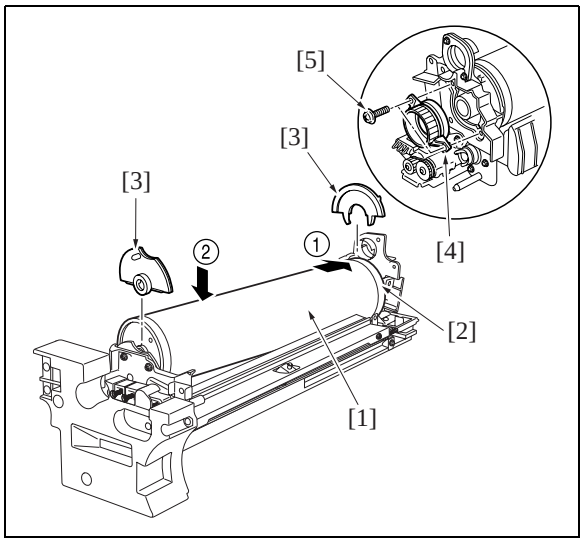
- Take care to avoid scratching the drum's light sensitive areas and the cleaning blade. Do not touch these areas with bare hands.
- When removing or installing, never allow the drum to bump against the plate-metal part of the cleaning blade.
- If you are going to place the drum in storage, be sure to place a cover on the drum (to cut off light to it) and store it in a dark place.
- When removing the drum unit, do not place your hand on the separation claw unit.

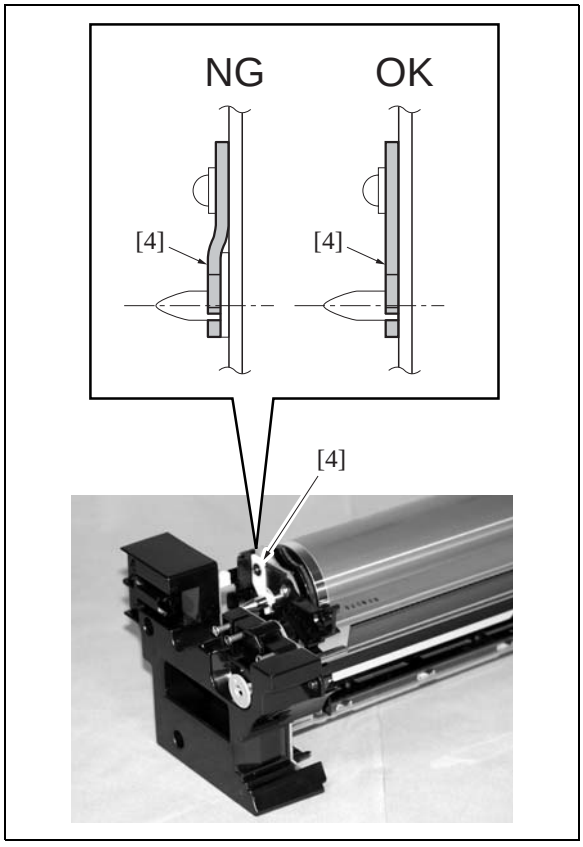
C. Installing procedure

Note:

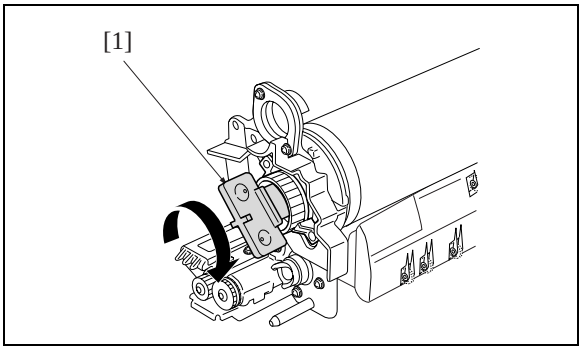
- Be sure that the toner collection sheet makes contact with the entire span of the drum, with no gaps.

1. Coat the entire surface of the drum with setting powder.
2. Fit the long convex end [2] of the drum [1] into the rear side of the unit, then set the drum down into the unit. Reattach the two seal blocks [3] (one at each end of the drum).
3. Reattach the drum bearing [4]. Fasten it into place with the 2 set screws [5].
4. Insert the drum shaft and fasten the hold-down member [4] with a screw. Be sure to attach the hold-down member securely as shown in the drawing right.





5. Using the jig [1] included on the drum unit cover, rotate the drum clockwise and confirm that there are no gaps in the setting powder coat, and that the toner collection sheet and cleaning blade are smooth, etc.
6. Finish installation by reversing the sequence of the removal procedure.



Note:

- Before installing the drum and cleaning blade (regardless of whether new or used), be sure to coat these with setting powder. Apply the powder around the entire drum, and on both sides of the blade.
- If you have coated setting powder onto the drum: Before installing the drum unit back into the main body, use an alcohol-soaked cloth to remove stray powder from the sensor surface on the toner control sensor board. This is necessary to ensure that accurate toner density readings are obtained.

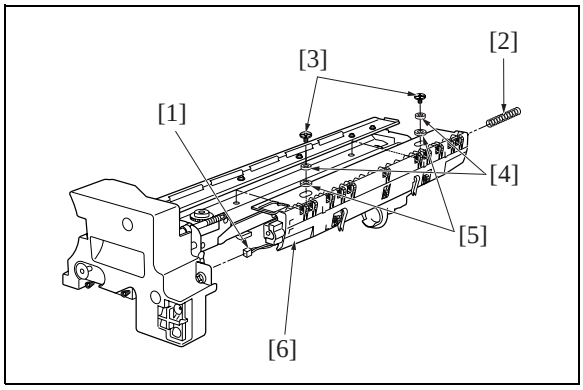
△2 • Be sure that the drum is oriented correctly before installing it. The drum should be positioned so that the convex end of the longer section comes at the back.

- After installing a new drum, be sure to reset the drum-related counters in the 36 mode.

5.6 Removing and Reinstalling the Separation Claw

A. Procedure

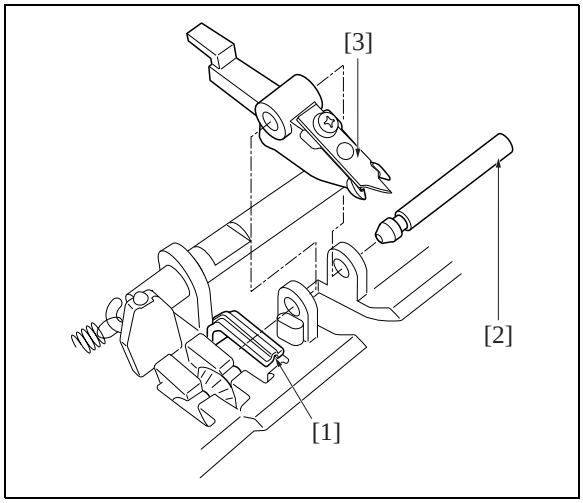
1. Remove the drum unit from the main body.
2. Remove the drum from the drum unit.
3. Disconnect the relay connector [1].
4. Remove the separation rock spring [2].
5. Remove the 2 positioning screws [3], the 2 collars [4] and the 2 spacer [5], and then remove the separation claw unit [6].



Note:

- While removing or installing the claw, be careful to avoid damage to the drum.

6. Pull out the separation fulcrum shaft [2] while pressing down the claw [1] and remove the 2 separation claws [3].
7. Reinstall the above parts following the removal steps in reverse.



Note:

- When installing the claw, be sure that it is correctly oriented and positioned.
- Do not touch the cleaning blade or the drum's light sensitive areas with bare hands.

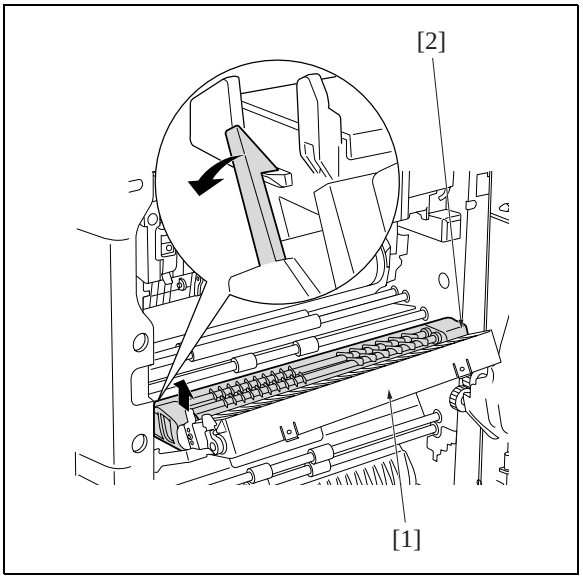
5.7 Removing and Reinstalling the Transfer and Separation Corona Unit

⚠2 A. Periodically replaced parts/cycle

- Transfer corona unit: Every 480,000 copies (7145)
- Transfer corona unit: Every 400,000 copies (7235/7228/7222)

B. Procedure

1. Open the ADU door.
2. Pull the conveyance unit [1] toward you to open.
3. Push the rear catch of the transfer/separation corona unit [2], then remove the unit.
4. Reinstall the above parts following the removal steps in reverse.



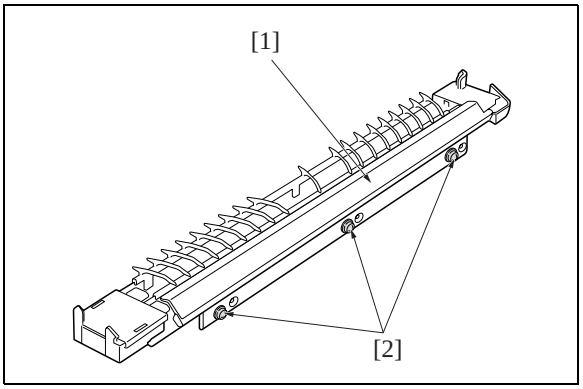
Note:

- When installing the Transfer/Separation corona unit, be sure that the cleaning material is in home position at the rear side.

5.8 Replacing the Transfer and Separation Wires

Note:

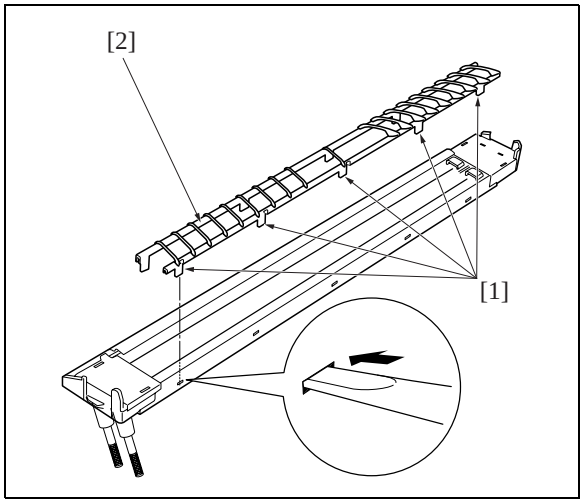
- Do not remove the screw that must not be removed [2] of the paper entrance guide plate [1].



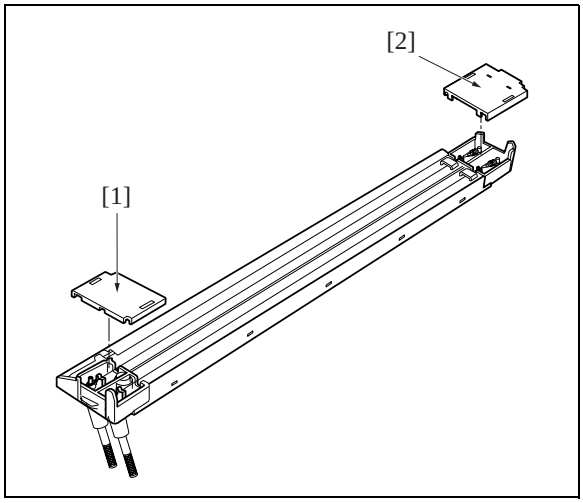
A. Procedure

1. Remove the transfer and separation corona unit from the main body.

2. Use a tweezers to remove the hook [1] from the transfer and separation corona unit. Then remove the plunging prevention plate [2].



3. Remove the spark arrestor plates/F [1], /R [2].

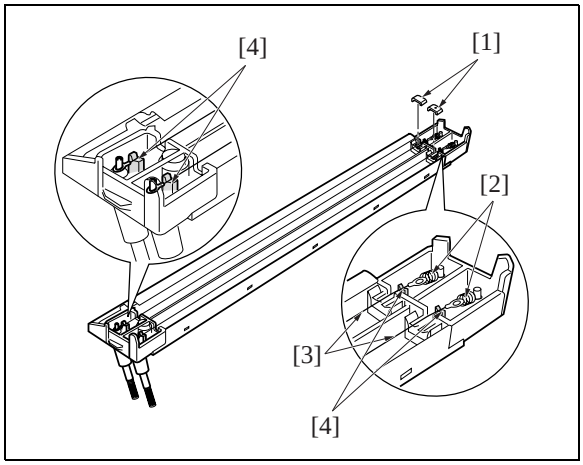


4. Move the cleaning block to home position, and remove the top covers [1] from the cleaning block.

5. Remove the spring [2] from each wire, and remove the wires [3].

Note:

- When removing the wire, be careful that the wire holding rubber that is in touch with the V-shaped rack [4] does not get lost.



6. Reinstall the above parts following the removal steps in reverse.

Note:

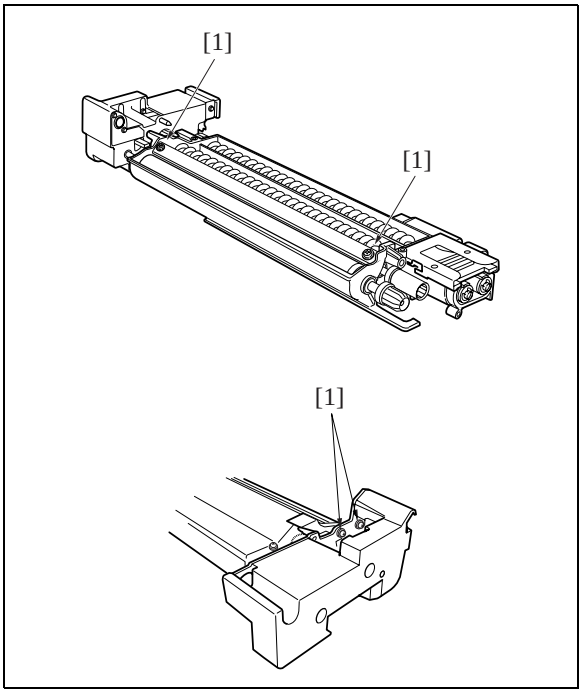
- When installing the wire, be sure that the cleaning block is in home position at the right side. Stretch the wire so that it fits into the V holders [4].

6. DEVELOPING UNIT

6.1 Screws That Must Not be Removed

Note:

- The 4 screws [1] right must not be removed or adjusted in the field. Please do not interfere with these screws.



6.2 Removing and Reinstalling the Developing Unit

⚠2 **A. Periodically replaced parts/cycle**

- Developing unit: Every 720,000 copies (7145)
- Developing unit: Every 600,000 copies (7235/7228/7222)

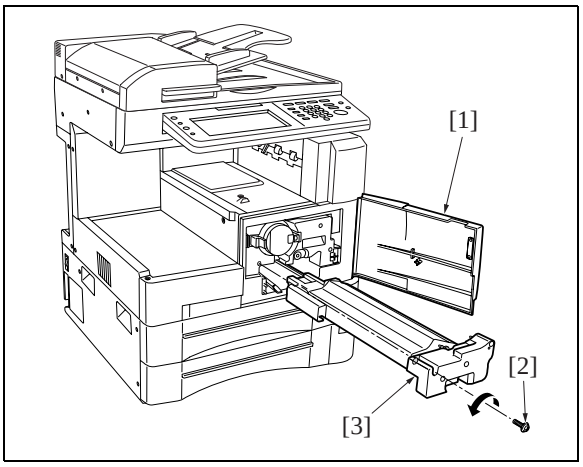
B. Procedure

1. Open the front door [1].

⚠2 *2.* Loosen the screw [2].

3. Pull the developing unit [3] outward to remove.

4. To reinstall: fit the rails on the bottom of the developing unit onto the grooves on the main body, and slide the unit into place.



6.3 Replacing the Developer

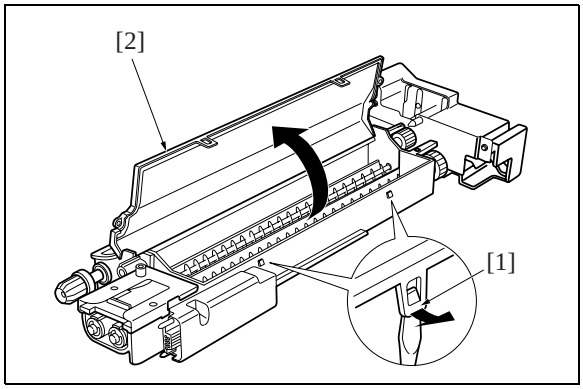
⚠2 **A. Periodically replaced parts/cycle**

- Developer: Every 240,000 copies (7145)
- Developer: Every 200,000 copies (7235/7228/7222)

B. Procedure

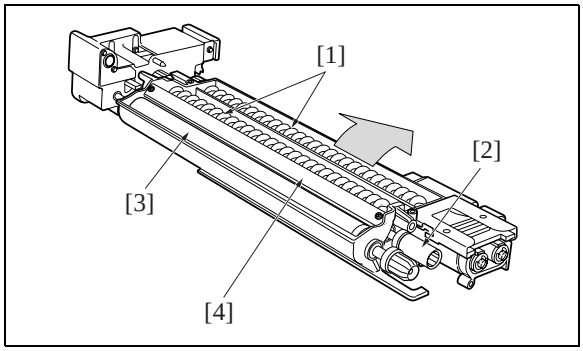
1. Remove the developing unit from the main body.

2. Release the hooks [1]. Lift the developing unit cover [2], and remove it.



3. Tilt the developing unit so that the agitator screws [1] are toward the bottom, and rotate the agitator input gear [2] counterclockwise as necessary to discharge all developer from within the developing unit and from the developing sleeve [3].

4. Wipe away any toner remaining on the developing regulator plate [4].



5. Pour new developer evenly over the agitator screws [1].

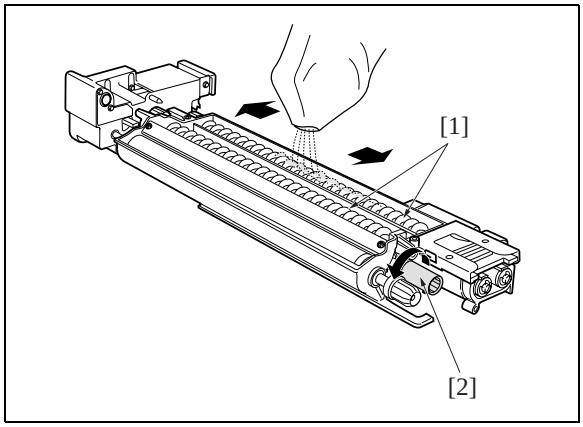
Note:

- When carrying out replacement, take care to prevent dirt and debris from entering the system.

6. Rotate the agitator input gear [2] 1 counterclockwise so that the developer moves into the inside of the developing unit.

Note:

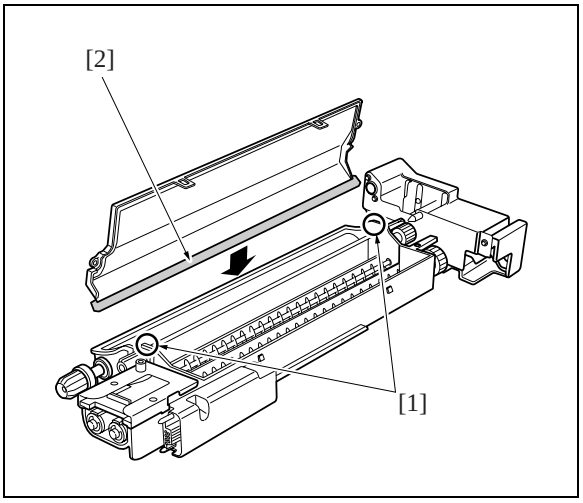
- After installing new developer, do not turn the developer-input gear or agitator input gear in the clockwise (reverse) direction.



7. Repeat steps 5 and 6 as necessary to load all of the developer.
8. Rotate the developing input gear counterclockwise and check the bristle height along the entire surface of the developing sleeve.
9. Reinstall the developing cover while hooking the cover onto the projection [1]. Be careful to keep the cover clear of the scatter prevention sheet [2].

Note:

- After replacing developer, carry out L detection adjustment before making copies.

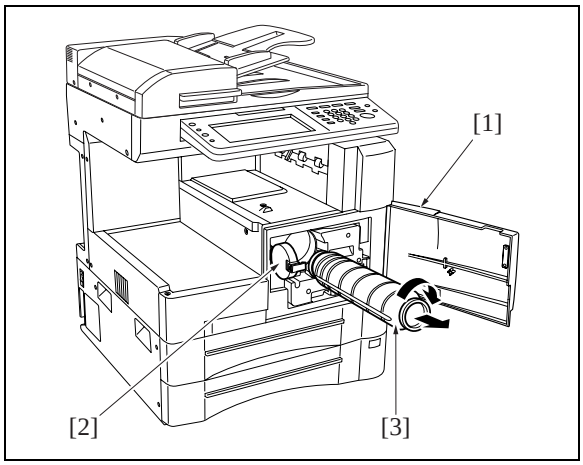


7. TONER SUPPLY/CLEANING/RECYCLE UNIT

7.1 Removing and Reinstalling the Toner Bottle

A. Procedure

1. Open the front door [1], and then open the toner supply cover [2].
2. Pull the toner bottle [3] slightly out, and turn it clockwise so that the upper part of the cartridge aligns with the cutout.
3. Withdraw the toner bottle [3].
4. Reinstall the above parts following the removal steps in reverse.



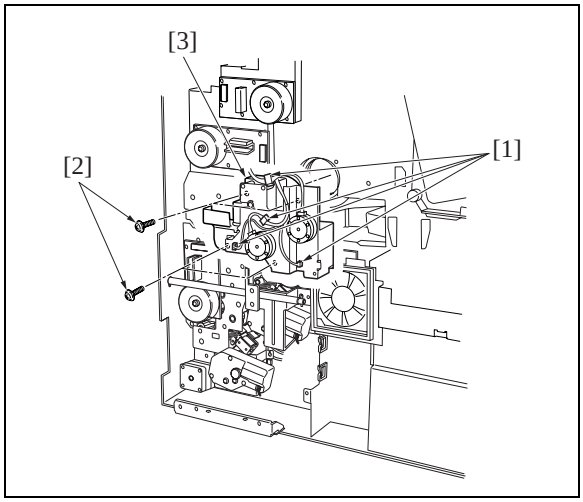
7.2 Removing and Reinstalling the Toner Supply Unit

A. Procedure

1. Remove the drum unit and developing unit.
2. Remove the toner bottle.
3. Remove the rear cover.
4. Remove the system control board unit.

- For removal procedure, see “2.1 Removing and reinstalling the motor units (main, fixing, feed, developing)”.

5. Remove the drum rotating plate.
6. Remove the 4 connectors [1].
7. Remove the 4 screws [2], and remove the toner supply unit [3] by pulling it toward you.
8. Reinstall the above parts following the removal steps in reverse.



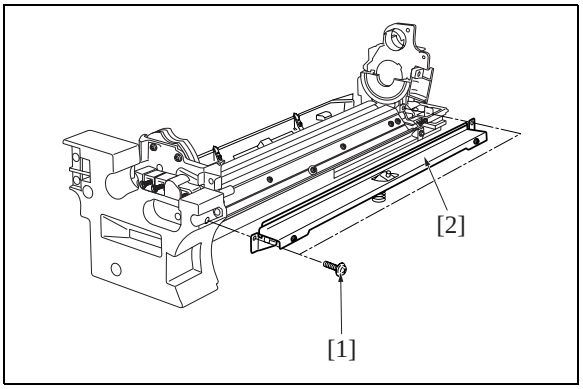
7.3 Removing and Reinstalling the Cleaning Blade

⚠2 A. Periodically replaced parts/cycle

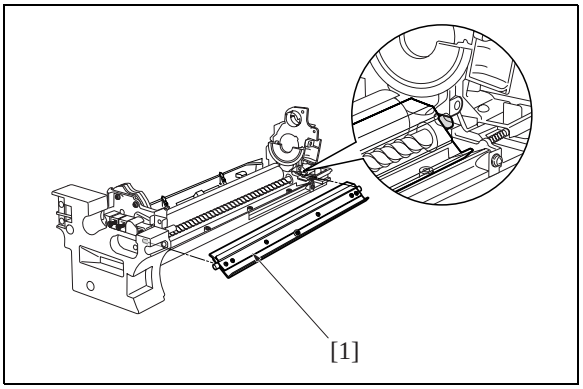
- Cleaning blade (Cleaning blade assembly): Every 240,000 copies (7145)
- Cleaning blade (Cleaning blade assembly): Every 200,000 copies (7235/7228/7222)

B. Procedure

1. Remove the drum unit from the main body.
2. Remove the drum from the drum unit.
3. Remove the 2 screws [1] , and remove the fitting [2] (suppressor piece) holding the cleaning blade in place.



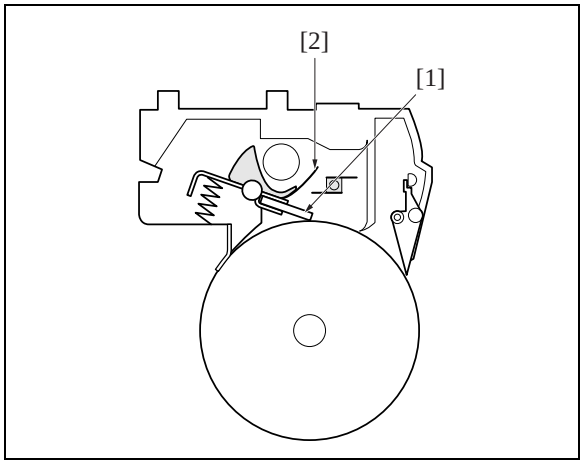
4. Remove the cleaning blade [1].



Note:

- Be careful of the cleaning blade edge. Do not touch the edge with bare hands, and take care to avoid scratching it.

5. Reinstall the above parts following the removal steps in reverse.



Note:

- When installing the cleaning blade [1], install so that the unit's transparent sheet [2] is oriented as shown in the diagram.
- Before installing the drum and cleaning blade (regardless of whether new or used), be sure to coat these with setting powder. Apply the powder around the entire drum, and on both sides of the blade.
- If you have coated setting powder onto the drum: Before installing the drum unit rear into the main body, use an drum cleaner cloth to remove stray powder from the sensor surface on the TCSB (Toner control sensor board). This is necessary to ensure that accurate toner density readings are obtained.

8. PAPER FEED UNIT

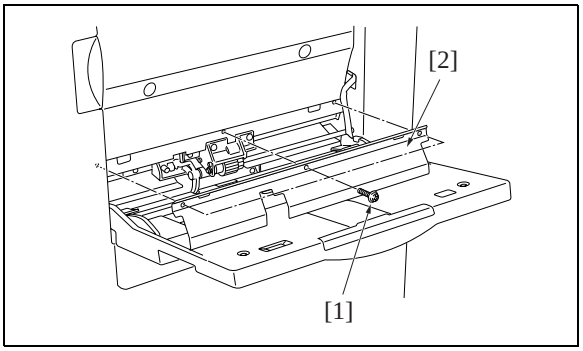
8.1 Replacing the Paper Feed Roller and the Feed Roller (Bypass)

⚠2 A. Periodically replaced parts/cycle

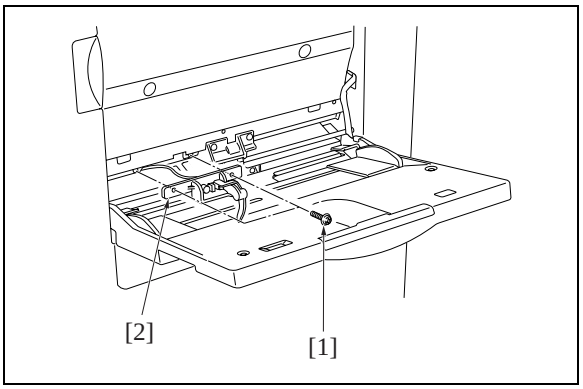
- Paper feed roller: Every 360,000 copies (Once for every 100,000 copies for actual durable count) (7145)
- Paper feed roller: Every 300,000 copies (Once for every 100,000 copies for actual durable count) (7235/7228/7222)
- Feed roller: Every 360,000 copies (Once for every 100,000 copies for actual durable count) (7145)
- Feed roller: Every 300,000 copies (Once for every 100,000 copies for actual durable count) (7235/7228/7222)

B. Procedure

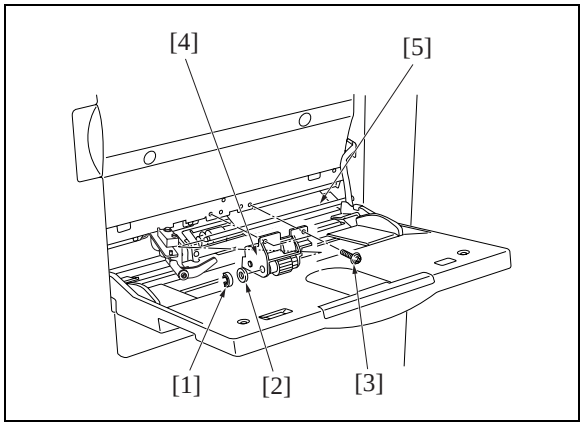
1. Open the bypass tray.
2. Remove the 3 screws [1] and remove the plate [2].



3. Remove the 2 screws [1], then remove the bypass sensor.



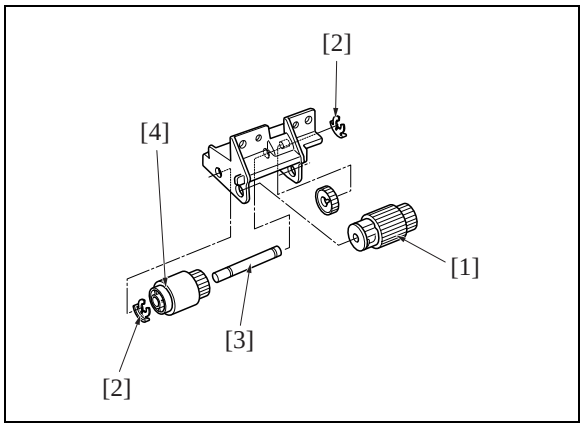
4. Remove the stop ring [1] and the bearing [2].
5. Remove the 2 screws [3]. Then slide the bypass feed roller unit [4] to the left side and remove it from the bypass drive shaft [5].



6. Remove the paper feed roller [1].
7. Remove the 2 stop rings [2] .
8. Pull out the bypass conveyance shaft [3], and remove the feed roller [4].
9. Reinstall the above parts following the removal steps in reverse.

Note:

- When reinstalling rollers, pay attention to their orientation.



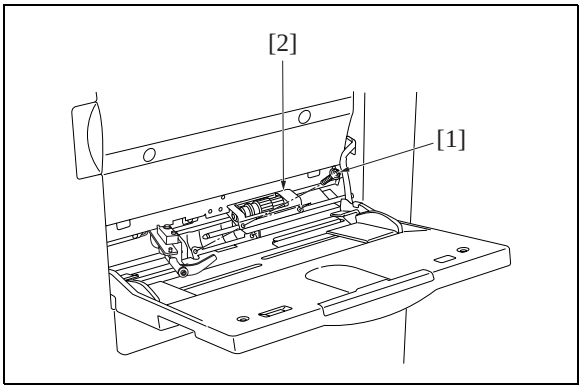
8.2 Replacing the Double Feed Prevention Roller

△2 A. Periodically replaced parts/cycle

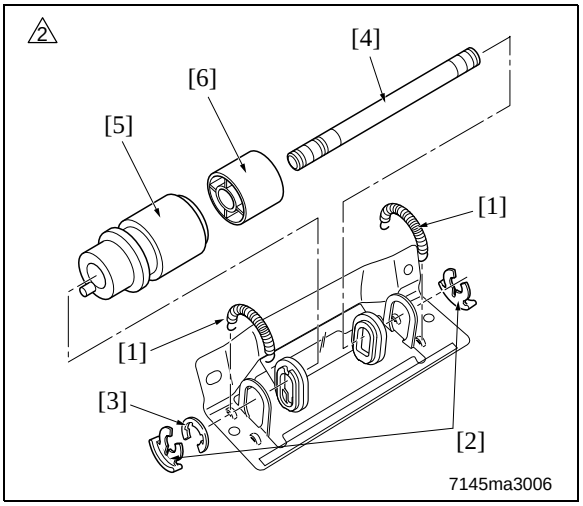
- Double feed prevention roller: Every 360,000 copies (Once for every 100,000 copies for actual durable count) (7145)
- Double feed prevention roller: Every 300,000 copies (Once for every 100,000 copies for actual durable count) (7235/7228/7222)

B. Procedure

1. Carry out the steps 1 through to 5 in "8.1 Replacing the paper feed roller and feed roller (bypass)".
2. Remove the 2 screws [1], and remove the by-pass double feed prevention roller unit [2].



3. Remove the 2 springs [1], the two stop rings [2] and the E ring [3].
4. Pull out the shaft [4] to the side where there is no E ring provided, and remove the bypass reverse roller [5] and the roller [6].
5. Reinstall the above parts following the removal steps in reverse.



Note:

- When reinstalling double feed prevention roller [5], pay attention to their orientation.

8.3 Replacing the Paper Feed Rubber and the Feed Rubber (Tray 1)

△2 **A. Periodically replaced parts/cycle**

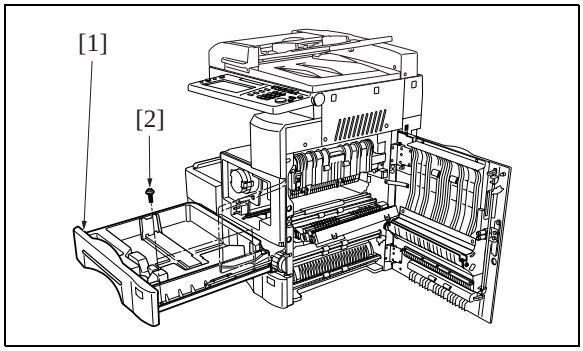
- Paper feed rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Paper feed rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)
- Feed rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Feed rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)

B. Procedure

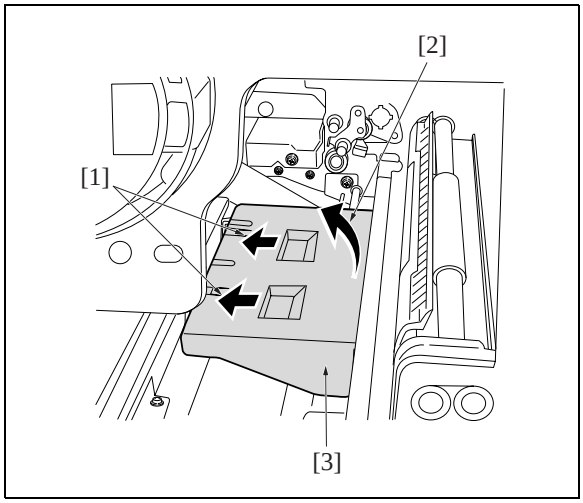
1. Open the ADU door, and then open the conveyance unit.

2. Remove the developing unit, the drum unit and the fixing unit.

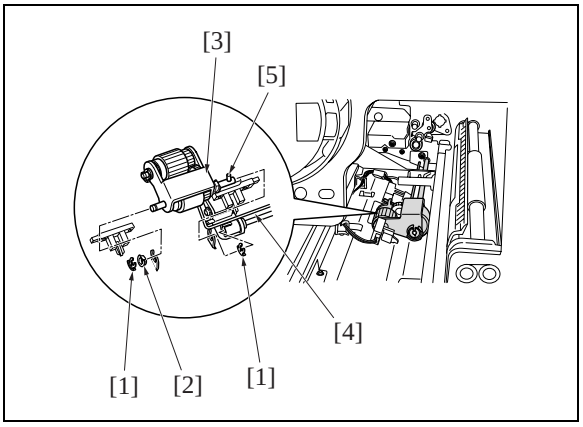
3. Slide the upper tray 1 [1] out. Remove the 2 screws [2] holding the tray in place, and take the tray 1 [1] off.



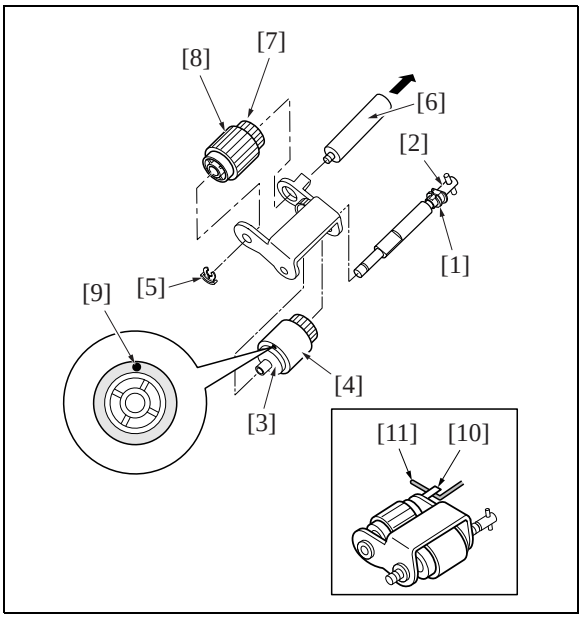
4. Remove the paper feed roller cover [3] in the direction of arrow [2] while pushing it in the direction of arrow [1].



5. Remove the 2 stop rings [1] and the bearing [2].
6. Remove the feed shaft [5] from the rocking shaft [4] while raising the shaft on the left side of the paper feed roller unit [3], and remove the paper feed roller unit [3].



7. Remove the collar [1] and pull out the feed shaft [2].
8. Remove the feed rubber [4] from the feed roller [3].
9. Remove the stop ring [5] and pull out the paper feed shaft [6].
10. Remove the paper feed rubber [8] from the paper feed roller [7].
11. Reinstall the above parts following the removal steps in reverse.



Note:

- Be sure to install the feed rubber [4] so that the paint mark [9] is turned in the direction as shown in the illustration.
- Install the paper feed roller unit so that the hook of the paper feed roller unit comes above the paper feed roller unit release arm.

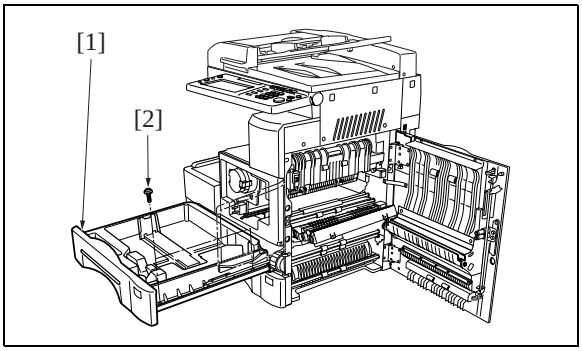
8.4 Replacing the Double Feed Prevention Rubber (Tray 1)

△2 **A. Periodically replaced parts/cycle**

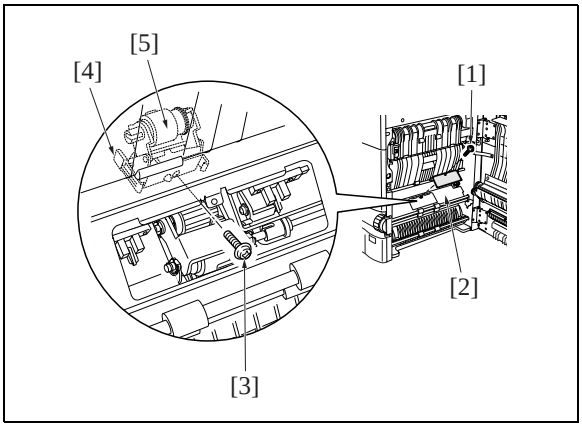
- Double feed prevention rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Double feed prevention rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)

B. Procedure

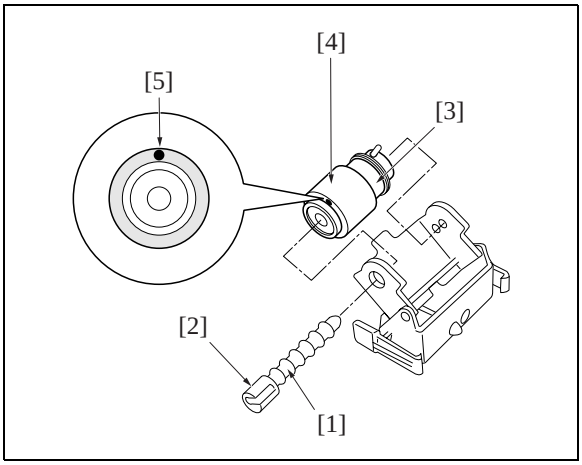
1. Open the ADU door.
2. Slide the tray 1 [1] out. Remove the 2 screws [2] holding the tray in place, and take the tray 1 [1] off.



3. Remove the screw [1], and remove the plate [2].
4. Remove the screw [3].
5. With the claws [4] on both ends sandwiched from the inside of the main body, remove the double feed prevention roller unit [5].

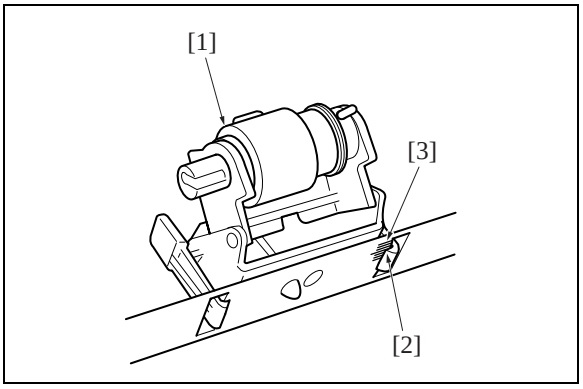


6. Pull out the lever click shaft [1] while pushing the lever section [2] of the lever click shaft [1].
7. Remove the double feed prevention rubber [4] from the double feed prevention roller [3].



III DIS./ASSEMBLY

8. Reinstall the above parts following the removal steps in reverse.



Note:

- Be sure to install the double feed prevention rubber so that the paint mark [5] above is turned in the direction as shown in the illustration.
- When installing the double feed prevention roller unit [1] to the main body, be sure to align the upper section of the claw [2] with the center (the longest scale) of the marking [3] stamped on the main body frame for leveling.

8.5 Replacing the Paper Feed Rubber and the Feed Rubber (Tray 2)

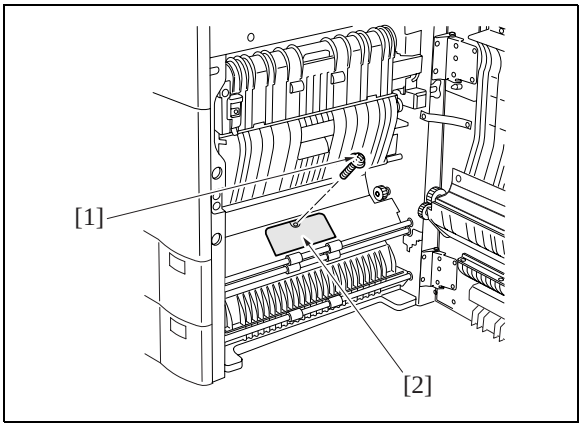
⚠2 A. Periodically replaced parts/cycle

- Paper feed rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Paper feed rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)
- Feed rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Feed rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)

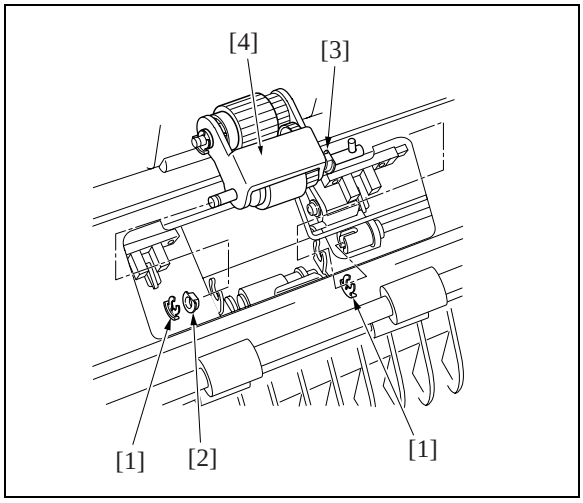
B. Procedure

1. Open the ADU door.

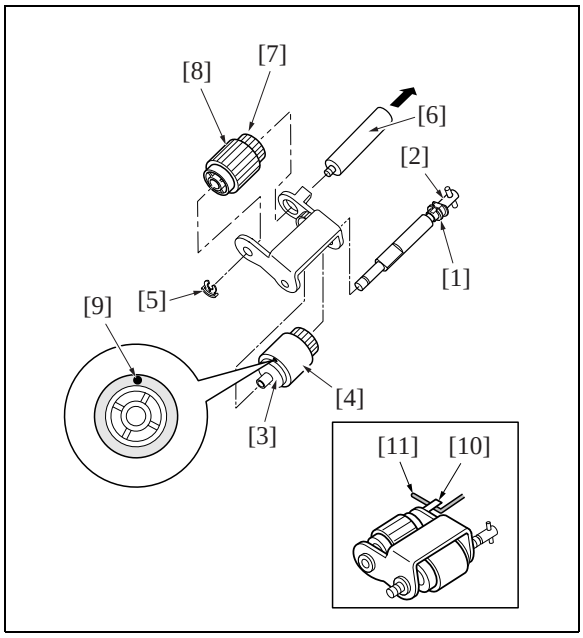
2. Remove the screw [1], and remove the plate [2].



3. Remove the 2 stop rings [1] and the bearing [2] on this side, and remove the paper feed roller unit [4] by sliding the bearing [3] on the rear side to the rear.



4. Remove the collar [1] and pull out the feed shaft [2].
5. Remove the feed rubber [4] from the feed roller [3].
6. Remove the stop ring [5] and pull out the paper feed shaft [6].
7. Remove the paper feed rubber [8] from the paper feed roller [7].
8. Reinstall the above parts following the removal steps in reverse.



Note:

- Be sure to install the feed rubber [4] so that the paint mark [9] is turned in the direction as shown in the illustration.
- Install the paper feed roller unit so that the hook of the paper feed roller unit comes above the paper feed roller unit release arm.

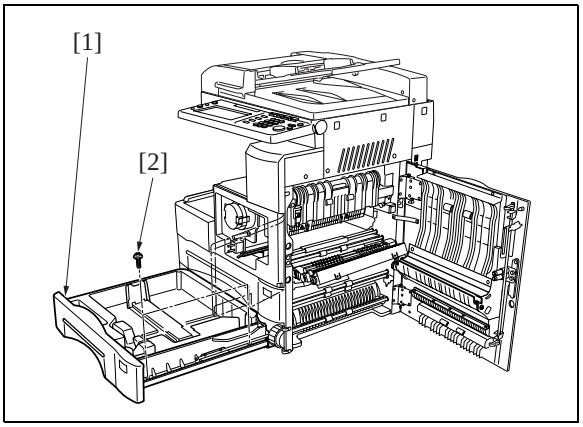
8.6 Replacing the Double Feed Prevention Rubber (Tray 2)

⚠2 A. Periodically replaced parts/cycle

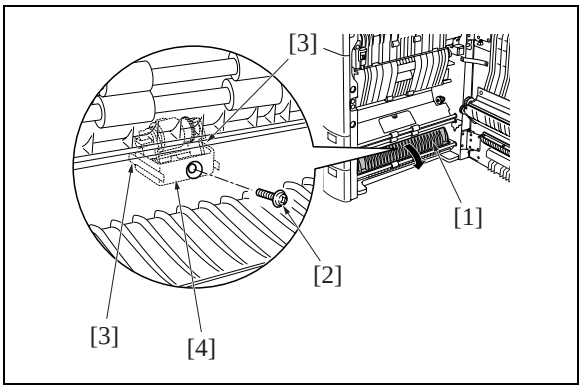
- Double feed prevention rubber: Every 480,000 copies (Once for every 200,000 copies for actual durable count) (7145)
- Double feed prevention rubber: Every 400,000 copies (Once for every 200,000 copies for actual durable count) (7235/7228/7222)

B. Procedure

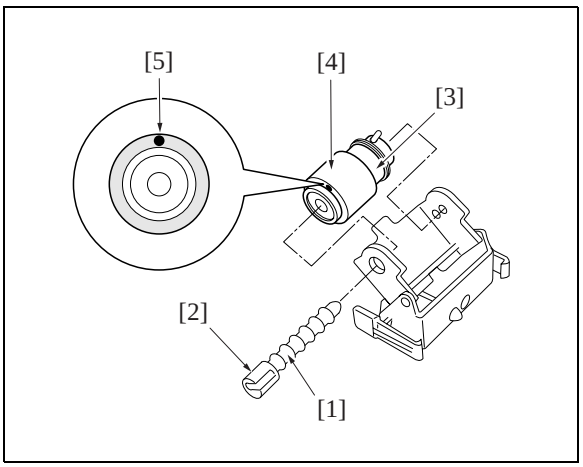
1. Open the ADU door.
2. Slide the tray 2 [1] out. Remove the 2 screws [2] holding the tray in place, and take the tray 2 [1] off.



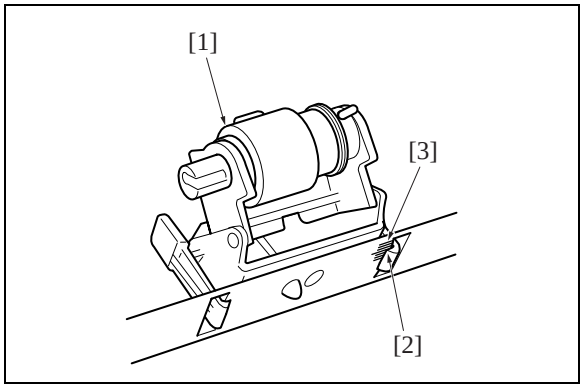
3. Open the guide plate [1], and remove the set screw [2].
4. With the claws [3] on both ends sandwiched from the inside of the main body, remove the double feed prevention roller unit [4].



5. While pressing on the lever [2] on the lever click shaft [1], pull out the lever click shaft [1].
6. Remove the double feed prevention rubber [4] from the roller [3].



7. Reinstall the above parts following the removal steps in reverse.

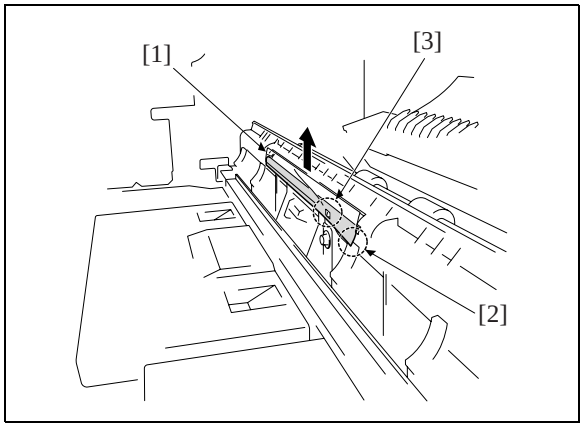


Note:

- Be sure to install the double feed prevention rubber so that the paint mark [5] above is turned in the direction as shown in the illustration.
- When installing the double feed prevention roller unit [1] to the main body, be sure to align the upper section of the claw [2] with the center (the longest scale) of the marking [3] stamped on the main body frame for leveling.

8.7 Cleaning the Paper Dust Removing Brush

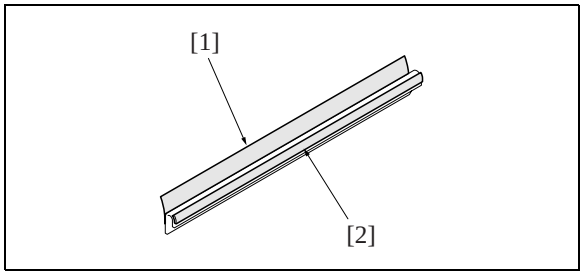
1. Open the ADU door, and then open the conveyance unit.
2. Remove the developing unit and the drum unit.
3. Release the catch of the claw [3] while lifting up slightly the lower section on this side [2] of the paper dust removing brush [1], and remove the paper dust removing brush [1] in the arrow-marked direction.



Note:

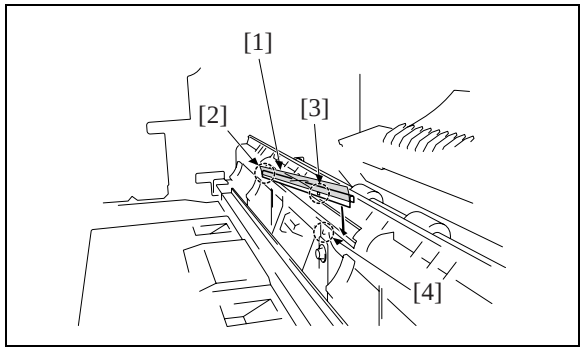
- Do not bend the metal plate of the paper dust removing brush [1].

4. Clean the PET sheet [1] and the plastic part [2] using a cleaning pad and a blower brush.



A. Installation procedure

1. Insert the paper dust removing brush [1] from the rear side [2], and confirm that the hole [3] in the brush [1] is engaged with the claw [4].
2. Finish installation by reversing the sequence of the removal procedure.



9. FIXING UNIT

9.1 Removing and Reinstalling the Fixing Unit

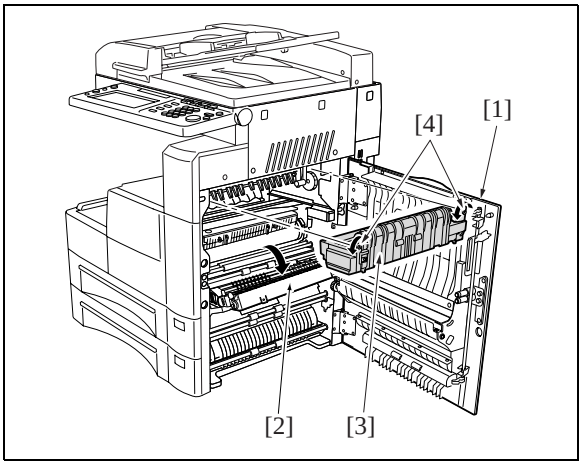
⚠Caution:

- **The fixing unit remains extremely hot immediately after power is switched OFF. To avoid injury from burns, do not begin work until the fixing unit has cooled down sufficiently.**
- **When installing the fixing unit, be sure to firmly tighten the unit's 2 set screws.**

A. Procedure

1. Open the ADU door [1] and the conveyance unit [2], and loosen the 2 screws [4] holding the fixing unit [3] in place.

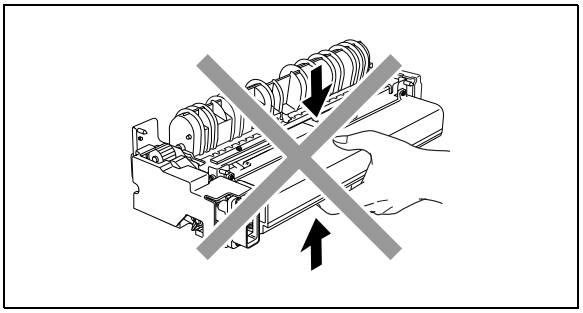
2. Pull the fixing unit out toward you and remove it.



Note:

- Do not touch the areas shown in the diagram right when attaching or removing the fixing unit.

⚠2 • Observe care, as force applied to the fixing claw and paper exit guide may result in the rollers being scratched.



3. Reinstall the above parts following the removal steps in reverse.

9.2 Replacing the Fixing Heater Lamp/1 and Lamp/2

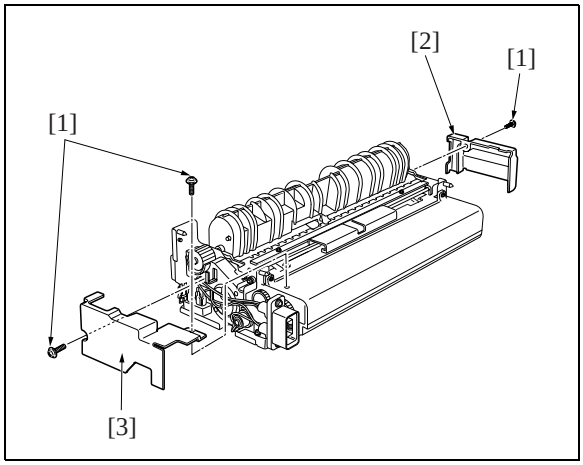
⚠Caution:
- **Do not touch the lamp area with bare hands.**

⚠2 **A. Periodically replaced parts/cycle**
- Fixing heater lamp/1: Every 480,000 copies (7145 only)
- Fixing heater lamp/2: Every 480,000 copies (7145 only)

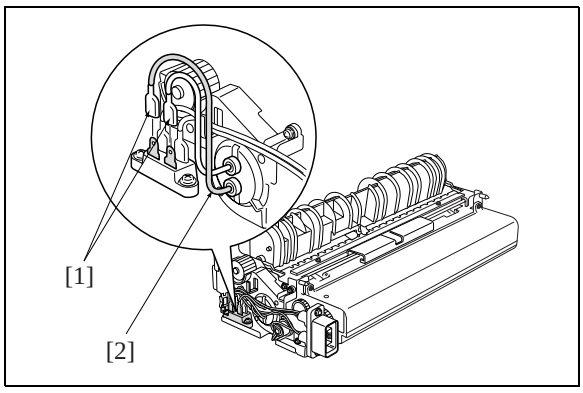
B. Procedure

1. Remove the fixing unit from the main body.

2. Remove the screws [1], and remove the 2 covers/F [2], /R [3].

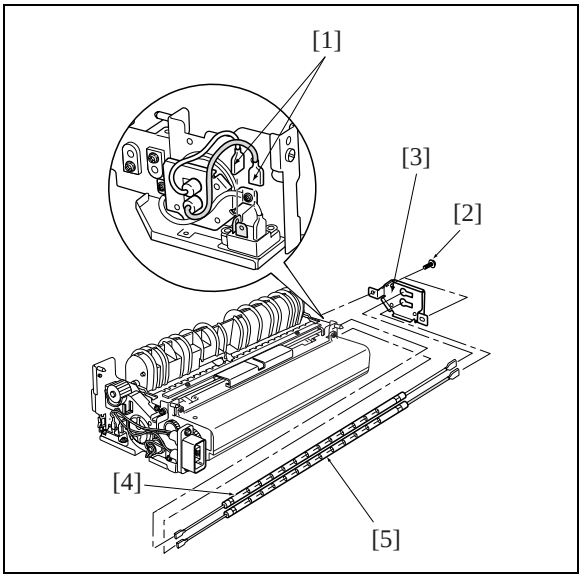


3. Detach the faston terminal [1] at the rear of each lamp.



Note:
- The marking “B” is stamped on the hole of the lamp support piece for the L3 (Fixing heater lamp /3) [2].

4. Detach the faston terminal [1] at the front of each lamp.
5. Remove the 2 screws [2], and remove the lamp support piece/F [3].
6. Keeping all cord faston terminal wiring straight, pull each fixing heater lamp/1 [4], /2 [5] toward you to remove.
7. Reinstall the above parts following the removal steps in reverse.



Note:

- When installing, be sure that manufacturer's mark is mounted on the front side.
- Do not allow the heater lamps to make contact with the inside of the roller.
- Install so that the main lamp is at the top, and the sub lamp is at the bottom.
  Heater cords are color-coded as follows.

Lamp	Color Positions					
	JAPAN		U.S.A.		EUROPE OTHERS	
	Front	Rear	Front	Rear	Front	Rear
Main	White	White	Red	Red	Blue	Blue
Sub	White	Black	Red	Black	Blue	Black

- When installing the faston terminal on the drive gear side, be sure that the installation position is correct.

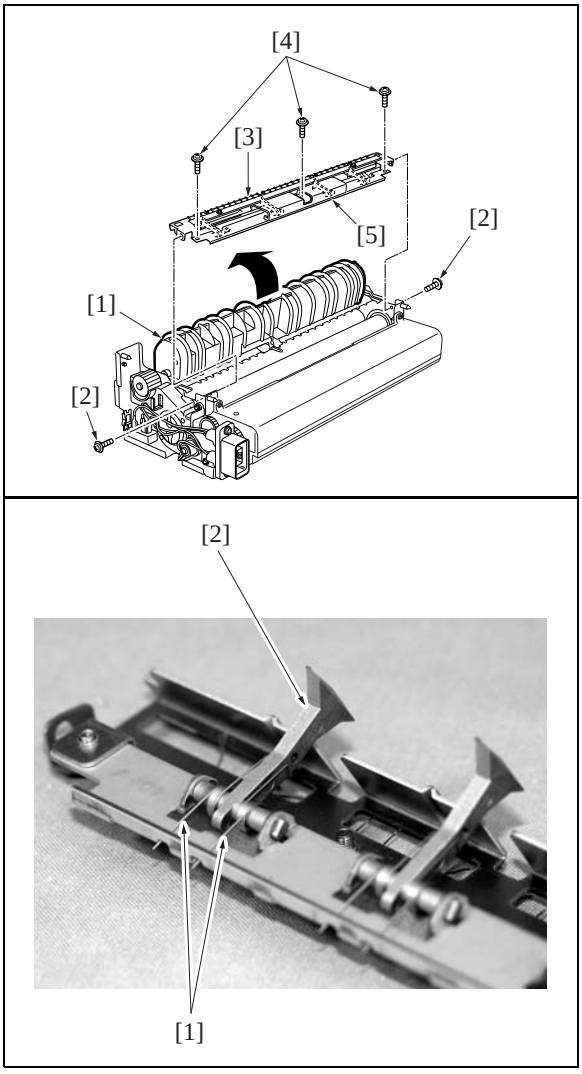
9.3 Removing and Reinstalling the Fixing Claw

△2 **A. Periodically replaced parts/cycle**

- Fixing claw: Every 240,000 copies (7145)
- Fixing claw: Every 200,000 copies (7235/7228/7222)

B. Procedure

1. Remove the fixing unit from the main body.
2. Remove the 2 covers/F, /R.
3. Open the fixing guide [1].
4. Remove the 2 set screws [2], and remove the fixing paper exit board/U [3].
5. Remove the 3 screws [4] from the fixing paper exit board/U, and remove the fixing claw unit [5].



6. Unhook the spring [1] of the fixing claw unit, and remove the fixing claw [2].
7. Reinstall the above parts following the removal steps in reverse.

Note:

- When installing the fixing claw, be sure that it is oriented correctly.
- Be sure that the claw is securely attached to the claw spring.
- When installing the fixing paper exit board/U to the fixing unit, be careful not to damage the fixing roller with the fixing claw.

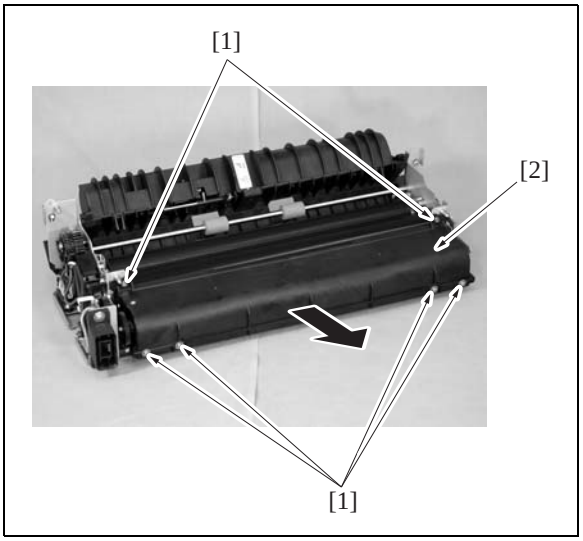
9.4 Replacing the Fixing Web

△2 A. Periodically replaced parts/cycle

- Fixing web (Fixing cleaner assembly) : Every 240,000 copies (7145)
- Fixing web (Fixing cleaner assembly) : Every 200,000 copies (7235/7228/7222)

B. Procedure

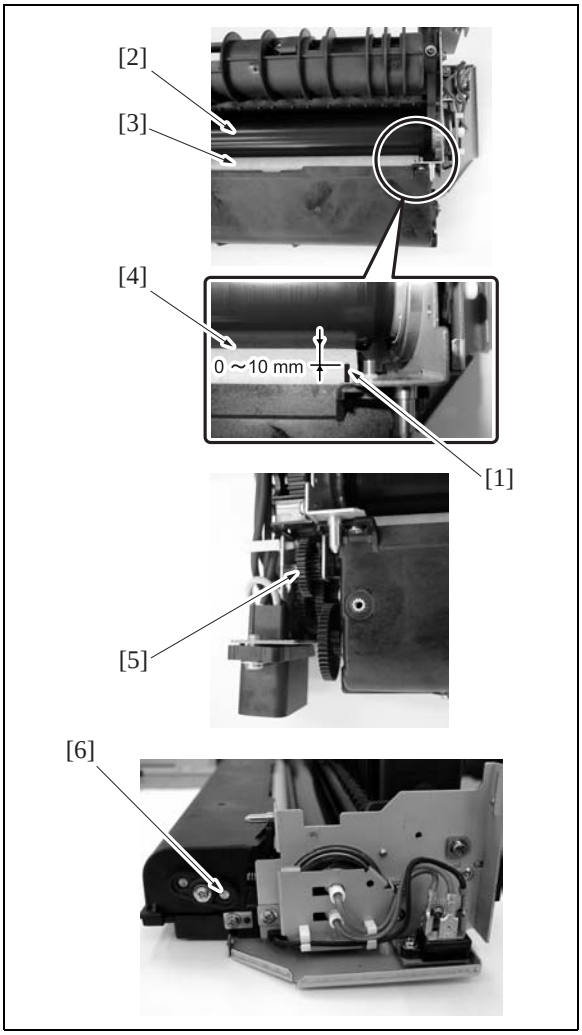
1. Remove the fixing unit from the main body.
2. Remove the front cover and the rear cover of the fixing unit.
3. Remove the fixing paper exit board/U.
4. Remove the 6 screws [1] and remove the fixing web [2].



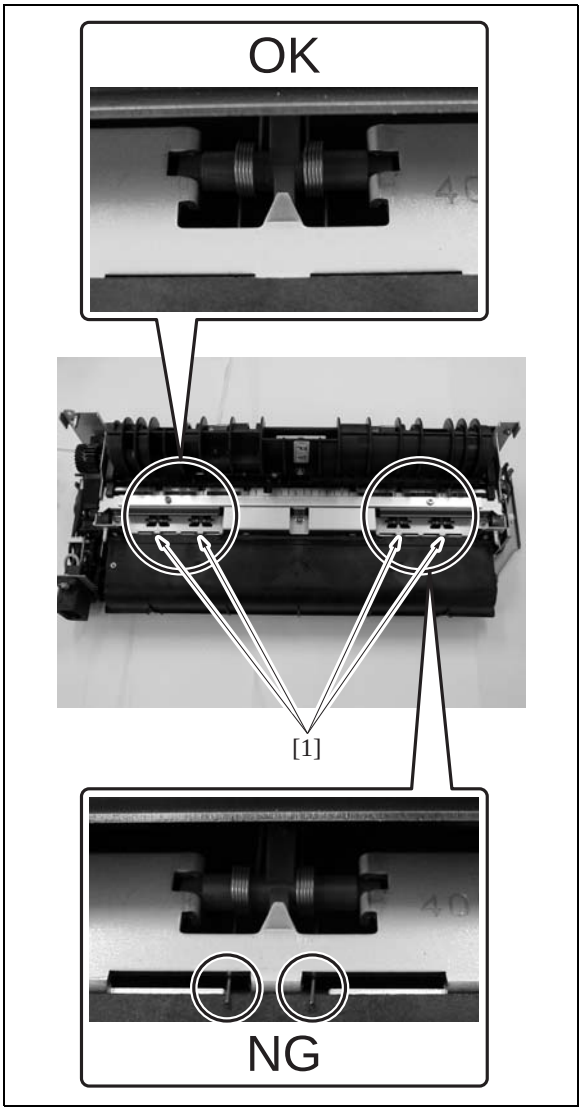
5. Reinstall the above parts following the removal steps in reverse.

Note:

- When replacing the fixing web, be sure to rotate the web drive gear [5] to wind up the edge in blue line [1] of the fixing web until it comes between 0 and 10mm from the nip section [4] of the fixing heating roller [2] and the fixing cleaning roller [3]. On this occasion, be sure to check the web winding shaft [6] if it is also rotating.



- When installing the fixing claw unit, be careful that the edge of the fixing claw pressing spring [1] does not run on the web case.



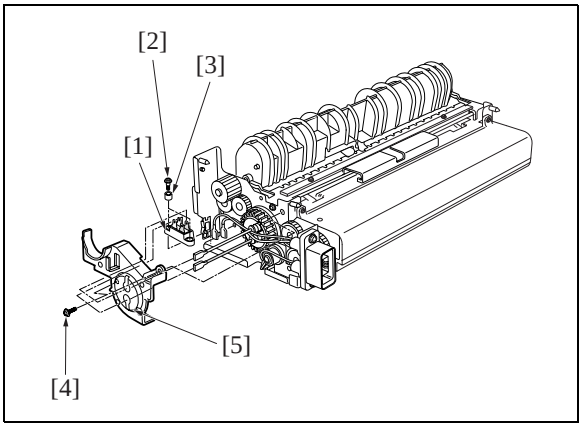
9.5 Removing/Reinstalling the Fixing Heat Roller, Fixing Pressure Roller, Heat Insulating Sleeve/A, /B, Fixing Idling gear /B, Fixing Bearing /U, /L, Heater Lamp/1, /2

△2 A. Periodically replaced parts/cycle

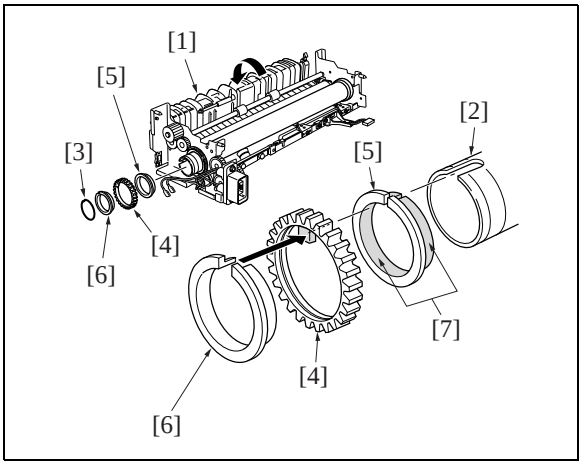
- Fixing heat roller: Every 120,000 copies (7145)
- Fixing heat roller: Every 200,000 copies (7235/7228/7222)
- Fixing pressure roller: Every 120,000 copies (7145)
- Fixing pressure roller: Every 200,000 copies (7235/7228/7222)
- Heat insulating sleeve/A: Every 120,000 copies (7145)
- Heat insulating sleeve/A: Every 200,000 copies (7235/7228/7222)
- Heat insulating sleeve/B: Every 120,000 copies (7145)
- Heat insulating sleeve/B: Every 200,000 copies (7235/7228/7222)
- Fixing idling gear/B: Every 120,000 copies (7145)
- Fixing idling gear/B: Every 200,000 copies (7235/7228/7222)
- Fixing bearing /U: Every 240,000 copies (7145)
- Fixing bearing/U: Every 200,000 copies (7235/7228/7222)
- Fixing bearing/L: Every 240,000 copies (7145)
- Fixing bearing/L: Every 200,000 copies (7235/7228/7222)
- Fixing heater lamp/1: Every 480,000 copies (7145 only)
- Fixing heater lamp/2: Every 480,000 copies (7145 only)

B. Procedure

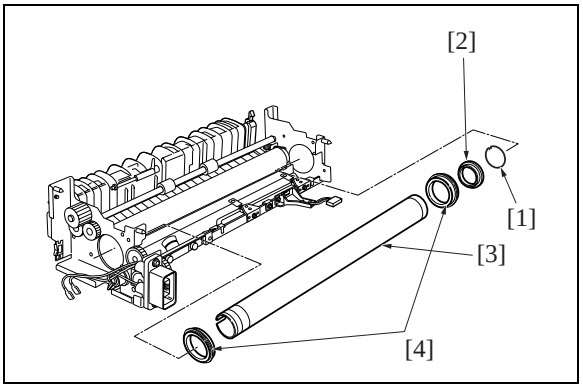
1. Remove the fixing unit from the main body.
2. Remove the fixing claw unit.
3. Remove the fixing web.
4. Remove the two fixing heater lamps.
5. Remove the 2 screws [2] and 2 collars [3] for the connector [1] that was connected to the faston terminal. Remove the connector [1].
6. Remove the 2 screws [4], and remove the lamp support piece/R [5].



7. Open the fixing guide [1] to release the pressure.
8. Remove the C-ring [3] at the rear of the heat roller [2], and then remove the gear [4] and heat insulating sleeve/A [5], /B [6].



9. Remove another C-ring [1], then remove the heat insulating sleeve A [2] (the sleeve toward the front).
10. Remove the 2 fixing bearings/U [4] (one at the front, one at the rear) from the fixing unit.
11. Remove the fixing heat roller [3].



Note:

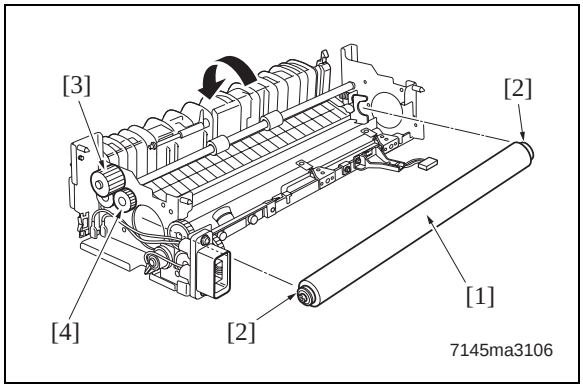
- When the installation, be sure that heat insulating sleeves A and B are oriented and positioned correctly.

  When replacing the heating insulating sleve/A [5], apply solvest 240 [7] to the inside and outside surfaces of the heat insulation sleeve/A [5] and then install it.

△2 *12.* After removing the fixing pressure roller [1], remove the E-ring at both sides and then remove the 2 fixing bearings/U [2].

△2 *13.* In the case of the 7145

Remove the E-ring, and then remove the fixing idling gear/B [4] and gear [3].



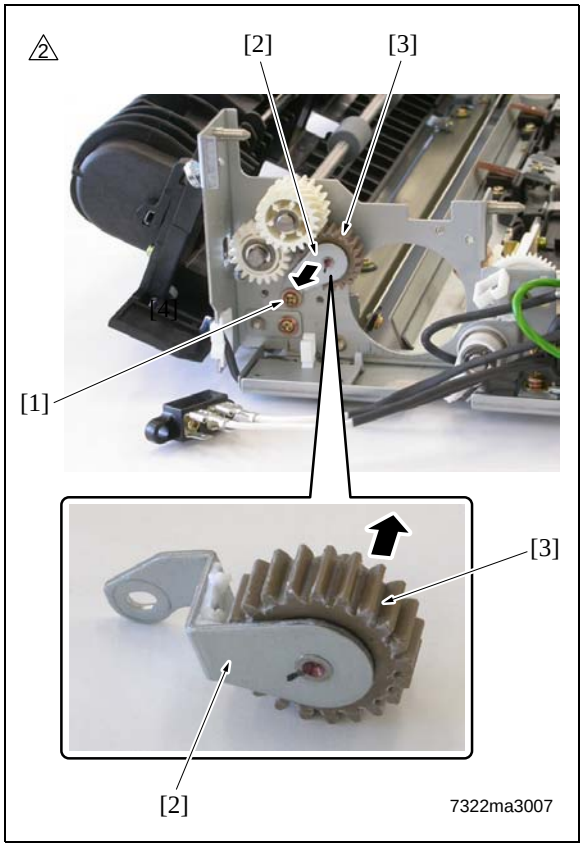
Note:

- When replacing the fixing idling gear/B [4], clean the gear shaft with a drum cleaner.

In the case of the 7235/7228/7222

Remove a screw [1] and then remove the shaft fixing plate caulking [2].

Remove the fixing idling gear/B [3] from the shaft section of shaft fixing plate caulking [2].



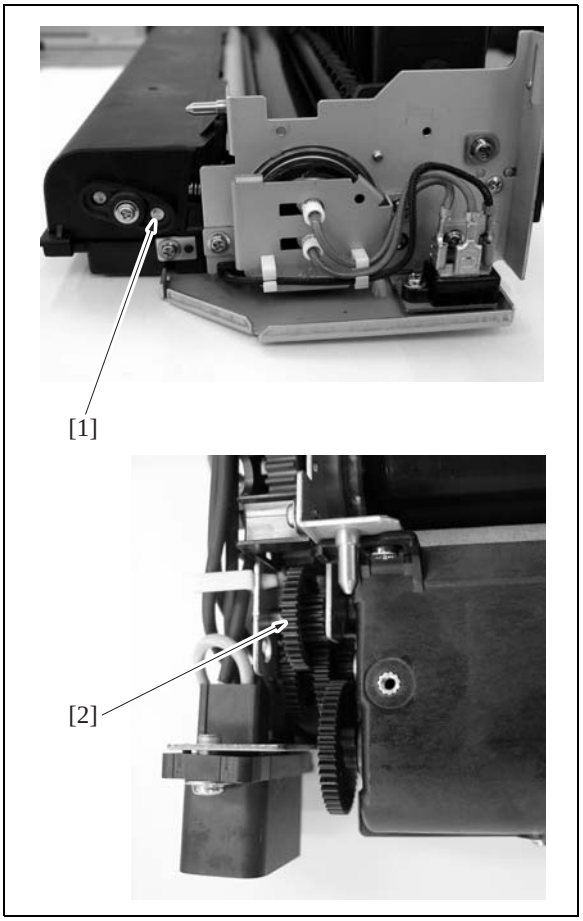
Note:

- When replacing the fixing idling gear/B [3] with a new one, clean the shaft section of the shaft fixing plate caulking [2] with drum cleaner.

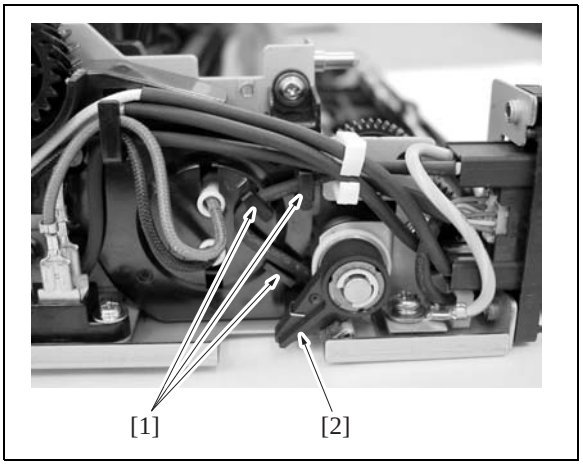
14. Reinstall the above parts following the removal steps in reverse.

Note:

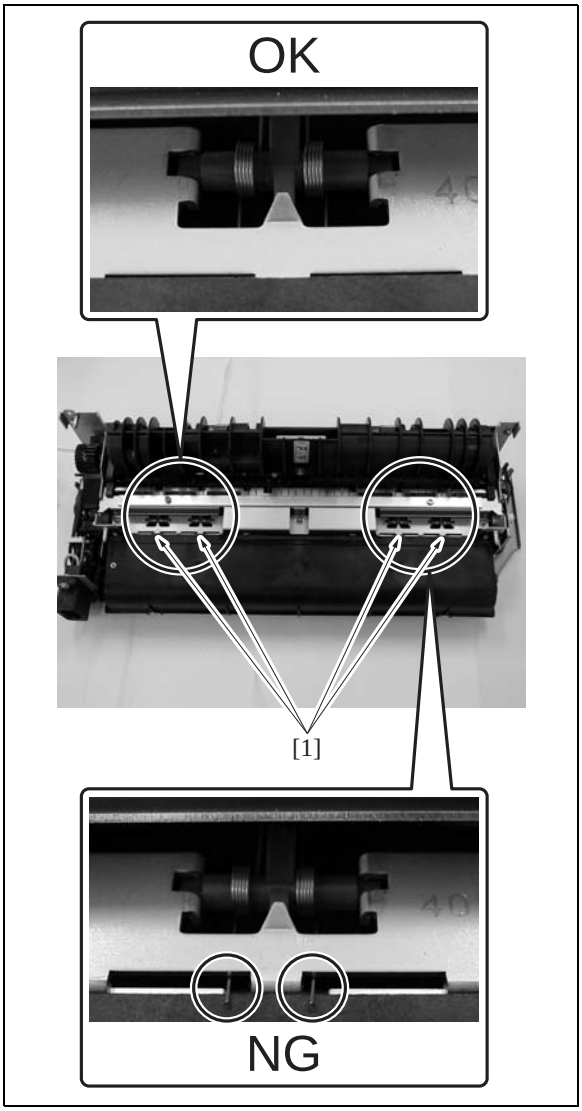
- When returning the fixing web in use, be sure to rotate the web drive gear [2] until the original web winding shaft [1] starts to turn.



- When returning the wiring harness, be sure to hook the wiring harness securely on the wiring harness holder section [1] so that it does not interfere with the web operation lever [2].



• When installing the fixing claw unit, be careful that the edge of the fixing claw pressing spring [1] does not run on the web case.



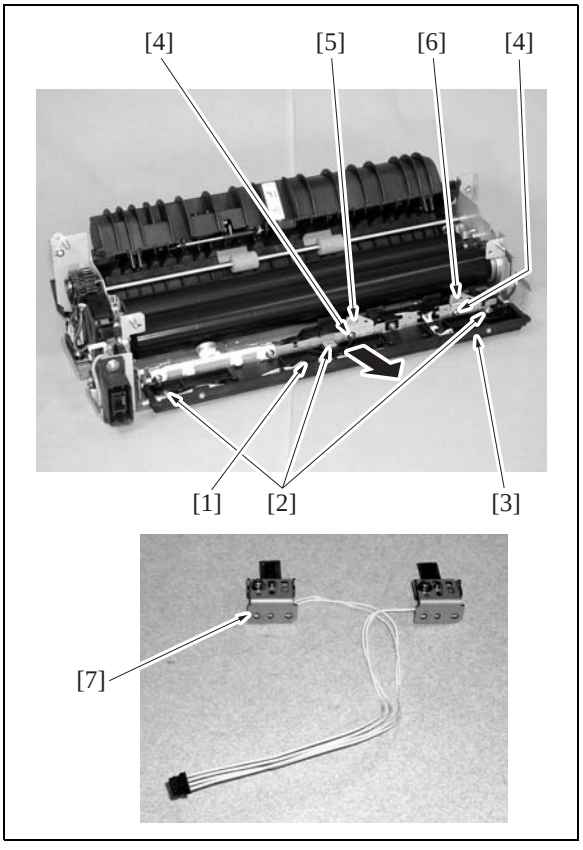
9.6 Removing and Reinstalling the Fixing Temperature Sensors

⚠Caution:
- **After installing the fixing temperature sensors:**
  Make sure that the wire bundles are not in contact with the fixing heat roller.
- **Make sure that the sensors them-selves (the sensor areas) are in contact with the fixing heat roller.**

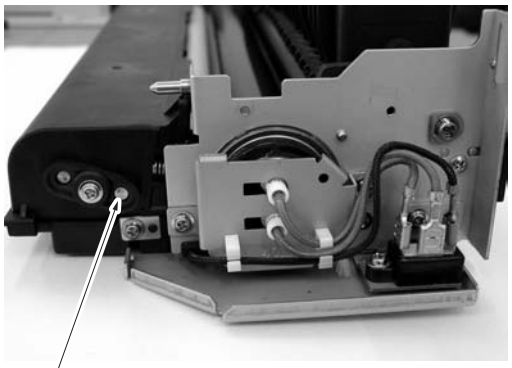
⚠2 A. Periodically replaced parts/cycle
- Fixing sensor assembly: Every 480,000 copies (7145)
- Fixing sensor assembly: Every 400,000 copies (7235/7228/7222)

B. Procedure
1. Remove the fixing unit from the main body.
2. Remove the fixing claw unit.
3. Remove the fixing web.
4. Remove the connector [1].
5. Remove the 3 screws [2], and remove the fixing web mounting piece [3].
6. Remove the 2 screws [4], and remove the fixing sensor assembly [5].
7. Reinstall the above parts following the removal steps in reverse.

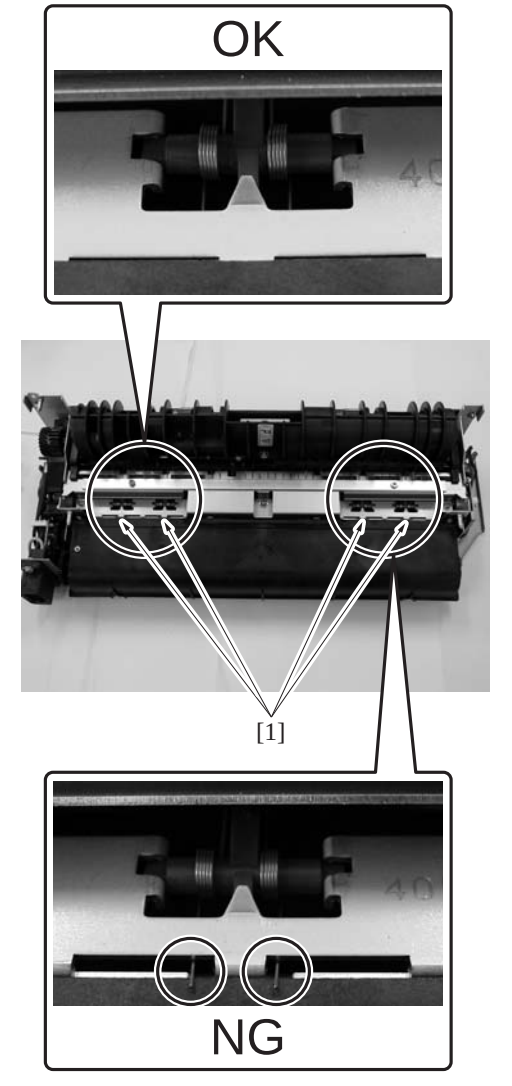
Note:
- The fixing sensor assembly [7] is made up of the TH1 (fixing temperature sensor/1) and the TH2 (fixing temperature sensor/2). Since the TH1 and the TH2 have been adjusted at the time of their assembling, avoid surely loosening the screws.
- Make sure that the sensors are in contact with the heat roller.



• When returning the fixing web in use, be sure to rotate the web drive gear until the original web winding shaft [1] starts to turn.



• When installing the fixing claw unit, be careful that the edge of the fixing claw pressing spring [1] does not run on the web case.



9.7 Removing and Reinstalling the Fuse Mounting Plate Assembly

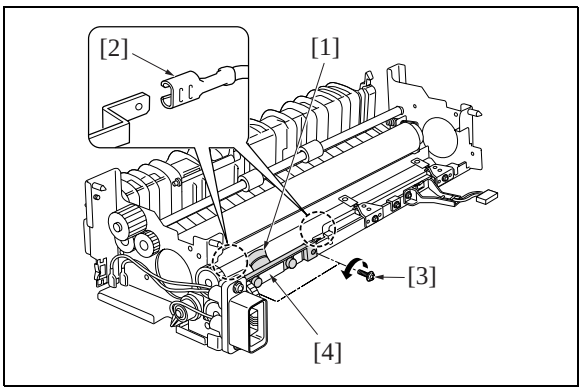
⚠Caution:
- **This is an important safety part. (P/N:SP00-0110) Be sure to observe the following cautions and steps when removing or reinstalling.**

⚠Caution:
- **After installing the thermostat:**
  Make sure that the wire bundle is not in contact with the fixing heat roller.
- **Make sure that the thermostat itself is in contact with the fixing heat roller.**

⚠2 **A. Periodically replaced parts/cycle**
- Fuse mounting plate assembly: Every 480,000 copies (7145)
- Fuse mounting plate assembly: Every 400,000 copies (7235/7228/7222)

B. Procedure

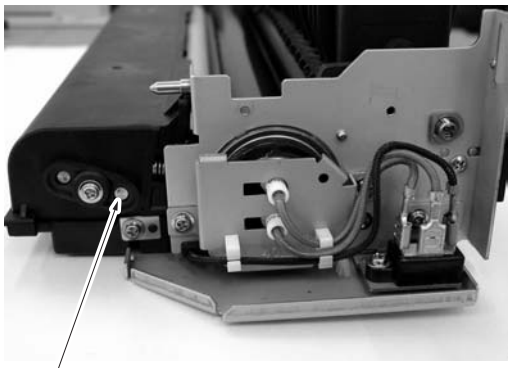
1. Remove the fixing unit from the main body.
2. Remove the fixing claw unit.
3. Remove the fixing web.
4. Remove the heat roller.
5. Remove the fixing web mounting piece.
6. Detach the thermostat [1] 2 Faston terminals [2].
7. Remove the 2 screws [3], and remove the Fuse mounting plate assembly [4].
8. Reinstall the above parts following the removal steps in reverse.



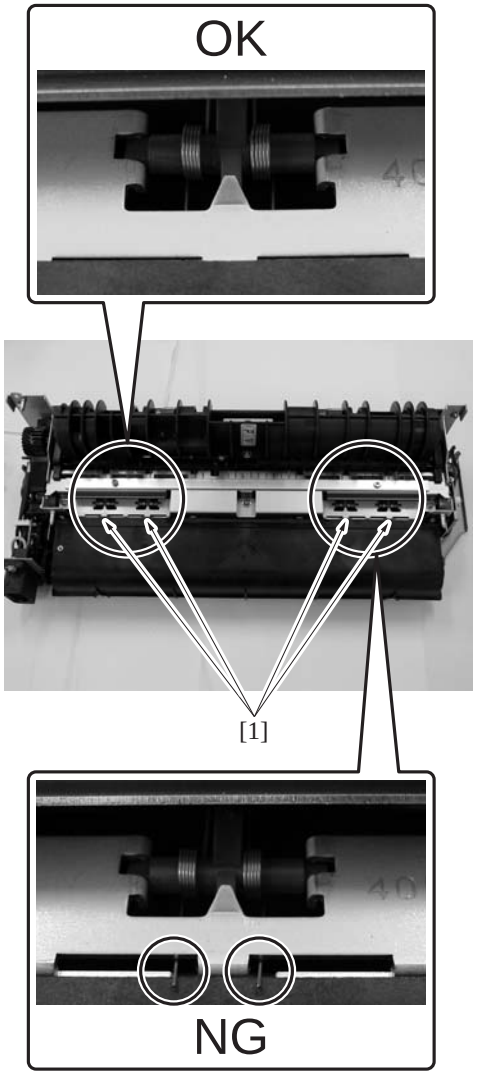
Note:
- When installing the fuse mounting plate assembly, with the base plate sandwiched between the unit's sheet materials, fasten it with the screw while attaching it to the bottom side.

⚠2 • When connecting the Faston terminals of the thermostat [1], be careful not to deform the plate spring section. Be careful not to mix up the front with the back of the Faston terminal.

• When returning the fixing web in use, be sure to rotate the web drive gear until the original web winding shaft [1] starts to turn after the assembling.



• When installing the fixing claw unit, be careful that the edge of the fixing claw pressing spring [1] does not run on the web case.



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Konica

SERVICE MANUAL

Models
7145/7222/7228/7235

Service Section

APRIL 2004

KONICA MINOLTA BUSINESS SOLUTIONS U.S.A., INC.

7145/7222/7228/7235

SERVICE MANUAL

APRIL 2004

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 Minolta Business Solutions U.S.A., Inc. strongly recommends that all servicing be performed by Konica Minolta-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Minolta Business Solutions U.S.A., 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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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

⚠ Because of possible hazards to an inexperienced person servicing this copier as well as the risk of damage to the copier, Konica Minolta Business Technologies, INC. (hereafter called the KMBT) strongly recommends that all servicing be performed only by KMBT-trained service technicians.
Changes may have been made to this copier to improve its performance after this Service Manual was printed. Accordingly, KMBT does not warrant, either explicitly or implicitly, that the information contained in this Service Manual is complete and accurate.
The user of this Service Manual must assume all risks of personal injury and/or damage to the copier while servicing the copier for which this Service Manual is intended.
Therefore, this Service Manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the copier properly.
Keep this Service Manual also for future service.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

⚠ In this Service Manual, each of three expressions "⚠DANGER", "⚠WARNING", and "⚠CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the copier, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

⚠**DANGER** :**Action having a high possibility of suffering death or serious injury**
⚠**WARNING**:**Action having a possibility of suffering death or serious injury**
⚠**CAUTION** :**Action having a possibility of suffering a slight wound, medium trouble, and property damage**

Symbols used for safety and important warning items are defined as follows:

△:Precaution when using the copier.


General precaution


Electric hazard


High temperature

⃠:Prohibition when using the copier.


General prohibition


Do not touch with wet hand


Do not disassemble

●:Direction when using the copier.


General instruction


Unplug


Ground/Earth

SAFETY WARNINGS

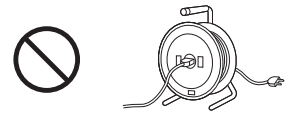
⚠1 [1] MODIFICATIONS NOT AUTHORIZED BY KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.

Konica Minolta brand copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

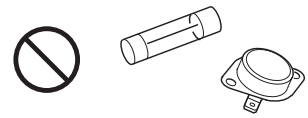
Copier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

⚠ DANGER : PROHIBITED ACTIONS

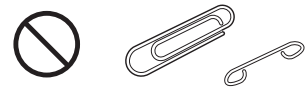
⚠1 • Using any cables or power cord not specified by KMBT.



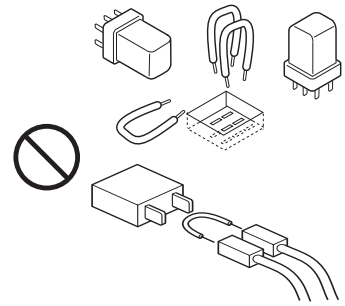
⚠1 • Using any fuse or thermostat not specified by KMBT. Safety will not be assured, leading to a risk of fire and injury.



• Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.



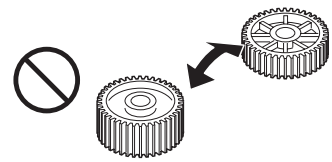
• Disabling relay functions (such as wedging paper between relay contacts)



• Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury.

⚠1 • Making any modification to the copier unless instructed by KMBT

⚠1 • Using parts not specified by KMBT



[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

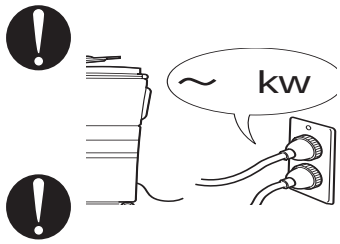
⚠ Konica Minolta brand copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1.Power Supply

⚠WARNING: Wall Outlet

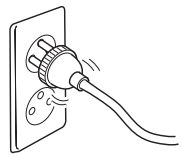
- Check that mains voltage is as specified. Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.
  If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.
  If excessive current flows in the wall outlet, fire may result.

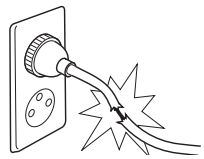


⚠WARNING: Power Plug and Cord

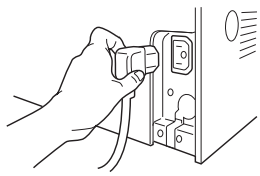
- Make sure the power cord is plugged in the wall outlet securely.
  Contact problems may lead to increased resistance, overheating, and the risk of fire.



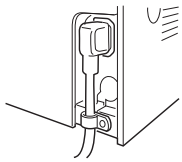
⚠ • Check whether the power cord is damaged. Check whether the sheath is damaged.
  If the power plug, cord, or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT. Using the damaged power cord may result in fire or electric shock.



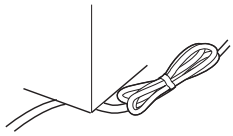
- When using the power cord (inlet type) that came with this copier, be sure to observe the following precautions:
  a. Make sure the copier-side power plug is securely inserted in the socket on the rear panel of the copier.
     Secure the cord with a fixture properly.



⚠ b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT.
     If the power cord (inlet type) is not connected to the copier securely, a contact problem may lead to increased resistance, overheating, and risk of fire.

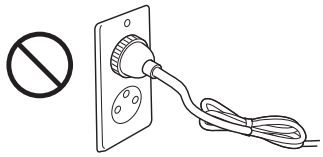


- Check whether the power cord is not stepped on or pinched by a table and so on.
  Overheating may occur there, leading to a risk of fire.

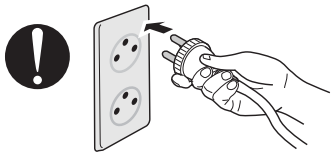


⚠WARNING: Power Plug and Cord

- Do not bundle or tie the power cord.
  Overheating may occur there, leading to a risk of fire.

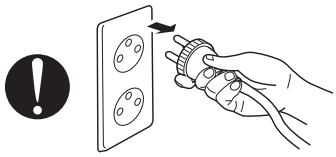


- Check whether dust is collected around the power plug and wall outlet.
  Using the power plug and wall outlet without removing dust may result in fire.



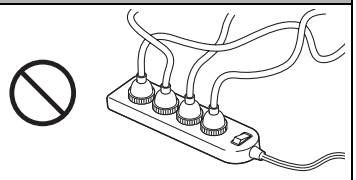
- Do not insert the power plug into the wall outlet with a wet hand.
  The risk of electric shock exists.

- When unplugging the power cord, grasp the plug, not the cable.
  The cable may be broken, leading to a risk of fire and electric shock.

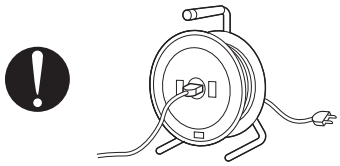


⚠WARNING: Wiring

- Never use multi-plug adapters to plug multiple power cords in the same outlet.
  If used, the risk of fire exists.

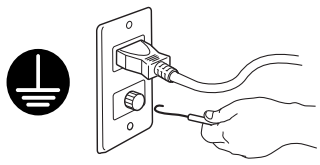


- When an extension cord is required, use a specified one.
  Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
  Do not use an extension cable reel with the cable taken up. Fire may result.



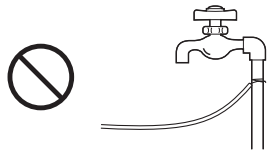
⚠WARNING: Ground Lead

- Check whether the copier is grounded properly.
  If current leakage occurs in an ungrounded copier, you may suffer electric shock while operating the copier. Connect the ground lead to one of the following points:
  a. Ground terminal of wall outlet
  b. Ground terminal for which Class D work has been done



⚠WARNING: Ground Lead

- Pay attention to the point to which the ground lead is connected.
  Connecting the ground lead to an improper point such as the points listed below results in a risk of explosion and electric shock:
  a. Gas pipe (A risk of explosion or fire exists.)
  b. Lightning rod (A risk of electric shock or fire exists.)
  c. Telephone line ground (A risk of electric shock or fire exists in the case of lightning.)
  d. Water pipe or faucet (It may include a plastic portion.)



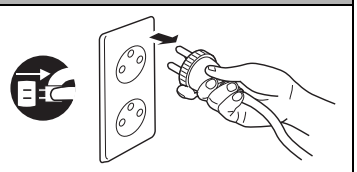
2.Installation Requirements

⚠WARNING: Prohibited Installation Place

- Do not place the copier near flammable materials such as curtains or volatile materials that may catch fire.
  A risk of fire exists.
- Do not place the copier in a place exposed to water such as rain water.
  A risk of fire and electric shock exists.

⚠WARNING: Nonoperational Handling

- When the copier is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.
  Dust collected around the power plug and outlet may cause fire.



⚠CAUTION: Temperature and Humidity

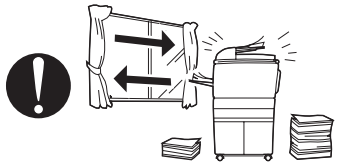
- Do not place the copier in a place exposed to direct sunlight or near a heat source such as a heater.
  A risk of degradation in copier performance or deformation exists.
  Do not place the copier in a place exposed to cool wind.
  Recommended temperature and humidity are as follows:
  Temperature: 10°C to 30°C
  Humidity: 10% to 80% (no dew condensation)
  Avoid other environments as much as possible.

⚠CAUTION: Ventilation

- Do not place the copier in a place where there is much dust, cigarette smoke, or ammonia gas.
  Place the copier in a well ventilated place to prevent machine problems and image faults.

⚠CAUTION: Ventilation

- The copier generates ozone gas during operation, but it is not sufficient to be harmful to the human body.
  If a bad smell of ozone is present in the following cases, ventilate the room.
  a. When the copier is used in a poorly ventilated room
  b. When taking a lot of copies
  c. When using multiple copiers at the same time



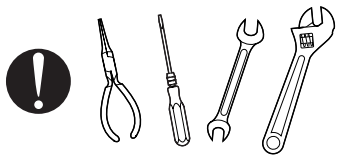
⚠CAUTION: Vibration

- When installing the copier, read the Installation Guide thoroughly. Be sure to install the copier in a level and sturdy place.
  Constant vibration will cause problems.

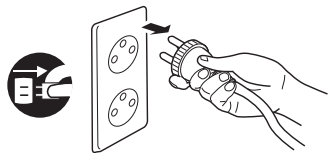
- Be sure to lock the caster stoppers.
  In the case of an earthquake and so on, the copier may slide, leading to a injury.

⚠CAUTION: Inspection before Servicing

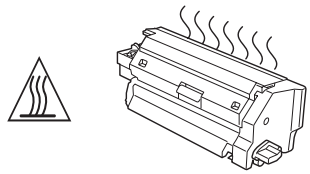
△3 • Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.
  If the prescribed procedure or tool is not used, the copier may break and a risk of injury or fire exists.



- Before conducting an inspection, be sure to disconnect the power plugs from the copier and options.
  When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.

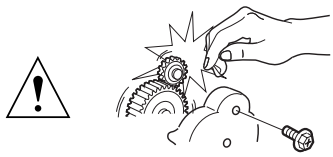


- The area around the fixing unit is hot.
  You may get burnt.



⚠DANGER: Work Performed with the Copier Powered

- Take every care when making adjustments or performing an operation check with the copier powered.
  If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



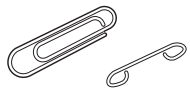
⚠DANGER: Work Performed with the Copier Powered

- Take every care when servicing with the external cover detached.
  High-voltage exists around the drum unit. A risk of electric shock exists.

⚠WARNING: Safety Checkpoints

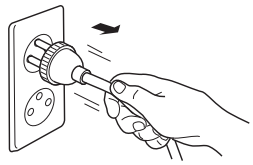
- Check the exterior and frame for edges, burrs, and other damages.
  The user or CE may be injured.

- Do not allow any metal parts such as clips, staples, and screws to fall into the copier.
  They can short internal circuits and cause electric shock or fire.



- Check wiring for squeezing and any other damage.
  Current can leak, leading to a risk of electric shock or fire.

- When disconnecting connectors, grasp the connector, not the cable.
  (Specifically, connectors of the AC line and high-voltage parts)
  Current can leak, leading to a risk of electric shock or fire.



- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.
  Current can leak, leading to a risk of copier trouble or fire.

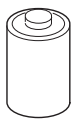
- Check high-voltage cables and sheaths for any damage.
  Current can leak, leading to a risk of electric shock or fire.

- Check electrode units such as a charging corona unit for deterioration and sign of leakage.
  Current can leak, leading to a risk of trouble or fire.

- Before disassembling or adjusting the write unit incorporating a laser, make sure that the power cord has been disconnected.
  The laser light can enter your eye, leading to a risk of loss of eyesight.

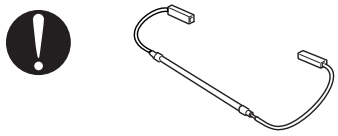
- Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position.
  The laser light can enter your eye, leading to a risk of loss of eyesight.

- When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority.
  Improper replacement can cause explosion.

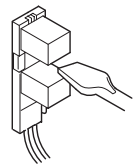


⚠WARNING: Safety Checkpoints

- After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state.
  A risk of fire exists.

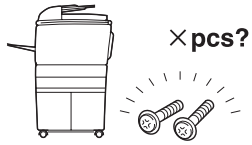


- Check the interlock switch and actuator for loosening and check whether the interlock functions properly.
  If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the copier (e.g., for clearing paper jam).



- Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts.
  Current can leak, leading to a risk of electric shock or fire.

- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)
  A risk of copier trouble, electric shock, and fire exists.



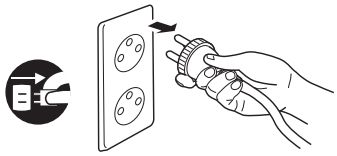
⚠DANGER: HANDLING OF SERVICE MATERIALS

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.
  If the substances get in the eye, rinse with plenty of water immediately. When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.
  You may be burned due to dust explosion.

⚠DANGER : HANDLING OF SERVICE MATERIALS

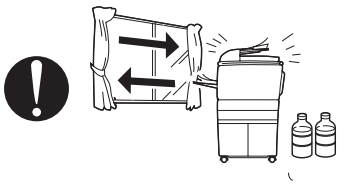
- Unplug the power cord from the wall outlet.
  Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the copier ON before any solvent remnants on the cleaned parts have fully evaporated.
  A risk of fire exists.

- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.
  A risk of fire exists.

- When using any solvent, ventilate the room well.
  Breathing large quantities of organic solvents can lead to discomfort.



[3] MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBT must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBT.
4. For reports and measures concerning serious accidents, follow the regulations given in “Serious Accident Report/Follow-up Procedures”.

[4] CONCLUSION

1. Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate daily service work conducted by the customer engineer.
2. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION

IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a “Class 1” laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

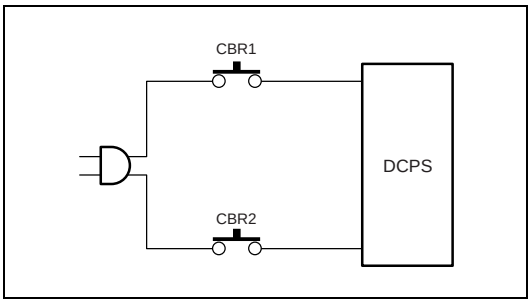
SAFETY CIRCUITS

This machine is provided with the following safety circuits to prevent machine faults from resulting in serious accidents.

[1] Overall protection circuit
[2] L2 and L3 (fixing heater lamp/1, /2) overheating prevention circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their functions.

[1] Overall protection circuit



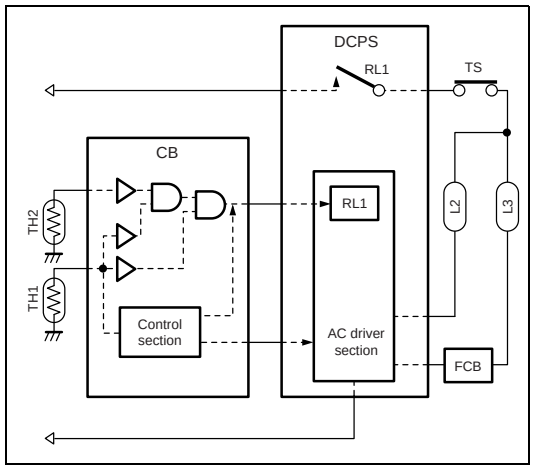
1. Protection by CBR1 and CBR2 (circuit breaker/1, /2)

CBR1 and CBR2 interrupt the AC line instantaneously when an excessive current flows due to a short in the AC line.

⚠**CAUTION:**

The CBR1 and CBR2 functions must not be deactivated under any circumstances.

[2] L2 and L3 (fixing heater lamp/1, /2) overheating prevention circuit



1. Protection by software

The output voltage from TH1, TH2 (fixing temperature sensor/1, /2) is read by the CPU. If this voltage is abnormal, L2 (fixing heater lamp/1), L3 (fixing heater lamp/2) and RL1 (main relay) are turned OFF.

⚠**CAUTION:**

The RL1 function must not be deactivated under any circumstances.

2. Protection by the hardware circuit

The output voltages from TH1, TH2 (fixing temperature sensor/1, /2) are compared with the abnormality judgment reference value in the comparator circuit. If the output voltage from TH1 or TH2 exceeds the reference value, L2 (fixing heater lamp/1), L3 (fixing heater lamp/2) and RL1 (main relay) are turned OFF in hardware means.

⚠ **CAUTION:**

Periodically check the TH1, TH2 face contacting the roller, and replace TH2 if any abnormality is detected.

The RL1 function must not be deactivated under any circumstances.

3. Protection by TS (thermostat)

When the fixing heat roller exceeds the specified value, TSs (thermostats) are turned OFF, thus interrupting the power to L2 (fixing heater lamp/1), and L3 (fixing heater lamp/2) directly.

△3 ⚠ **CAUTION:**

Do not use any other electrical conductor in place of TS1 and TS2.

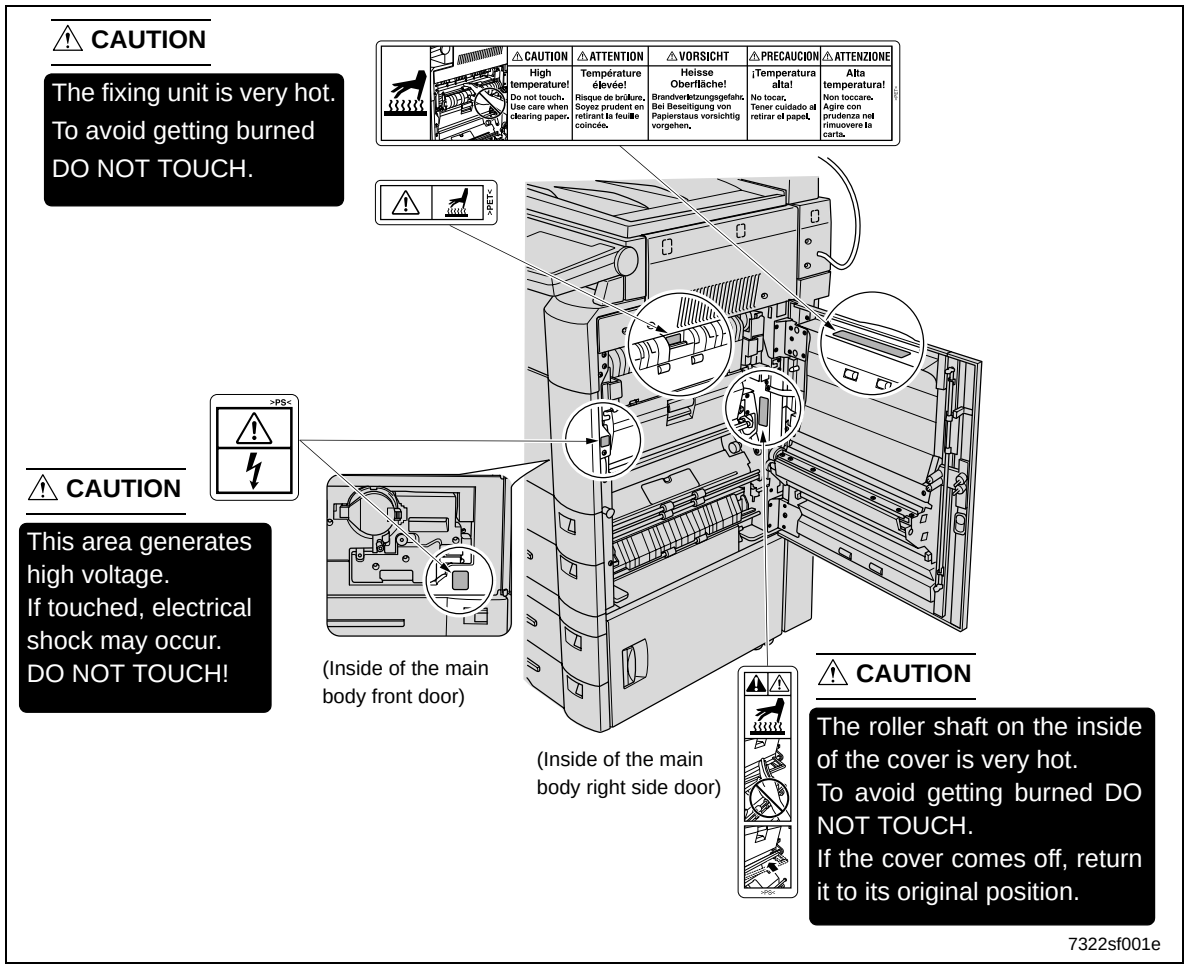
INDICATION OF WARNING ON THE MACHINE

Caution labels shown below are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.

⚠3 [1] Main body

1. Right side

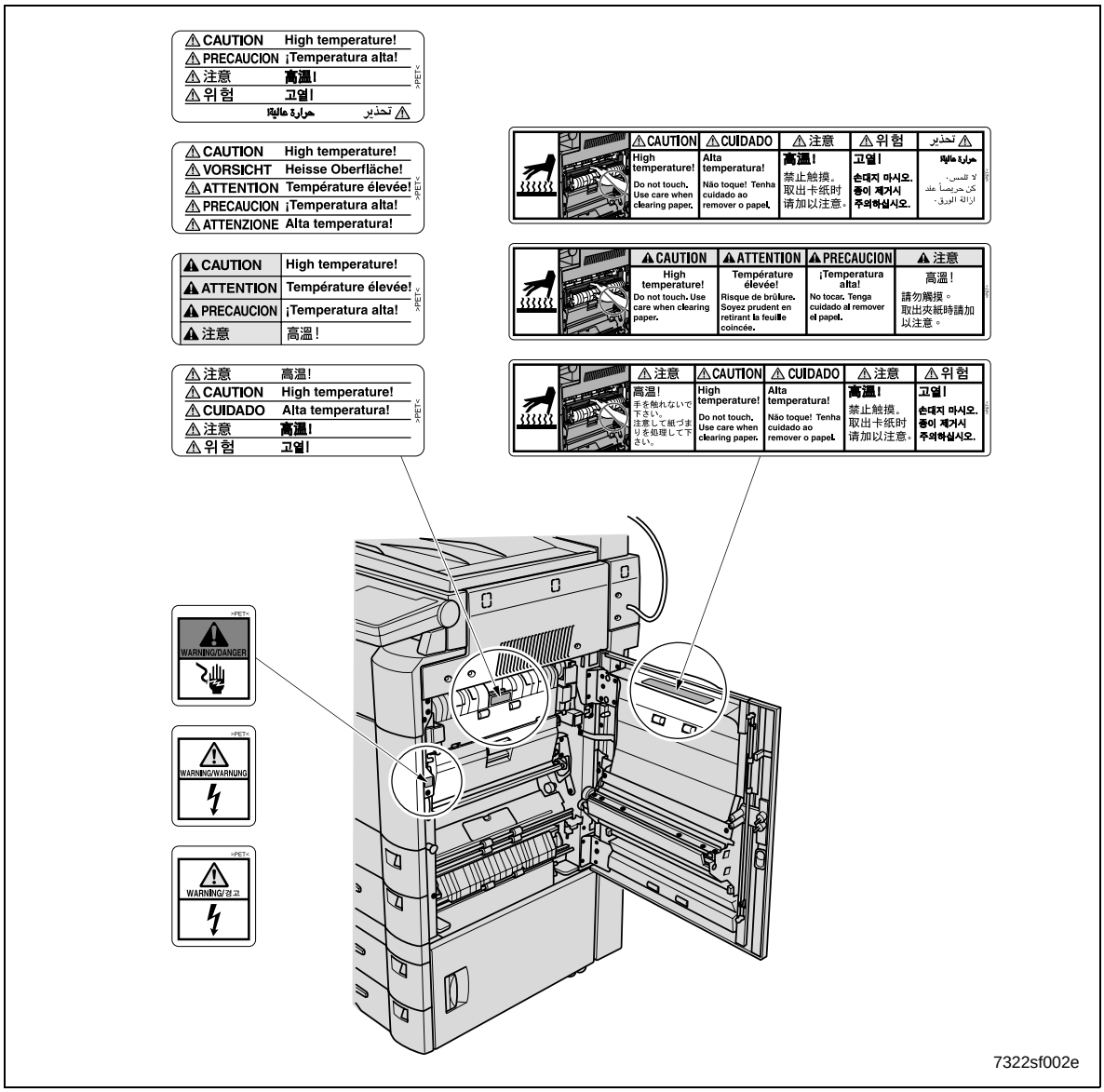
<7145>



⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

△3 <7235/7228/7222>



7322sf002e

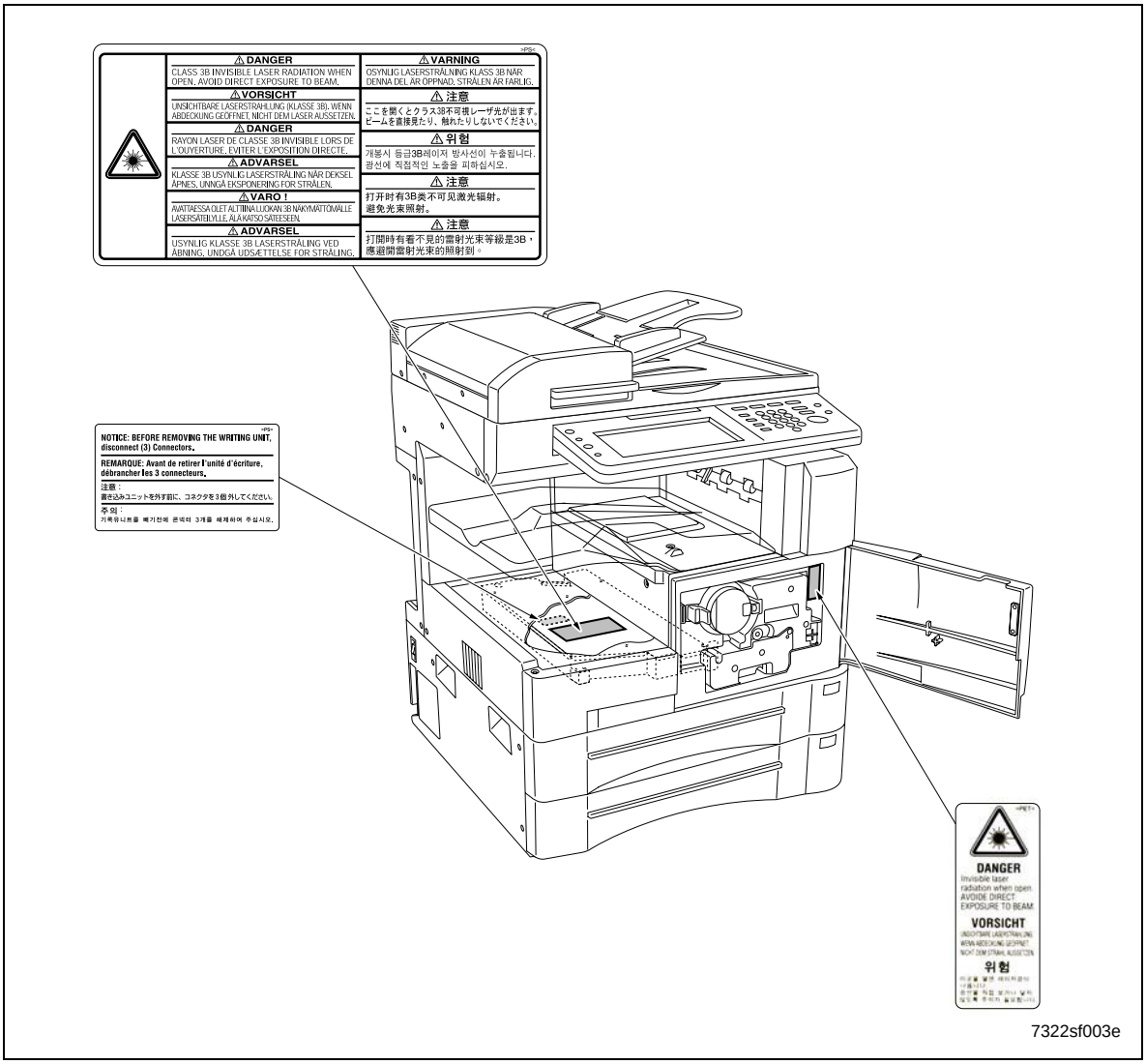
⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

2. Front side

⚠3 <7145>



⚠CAUTION

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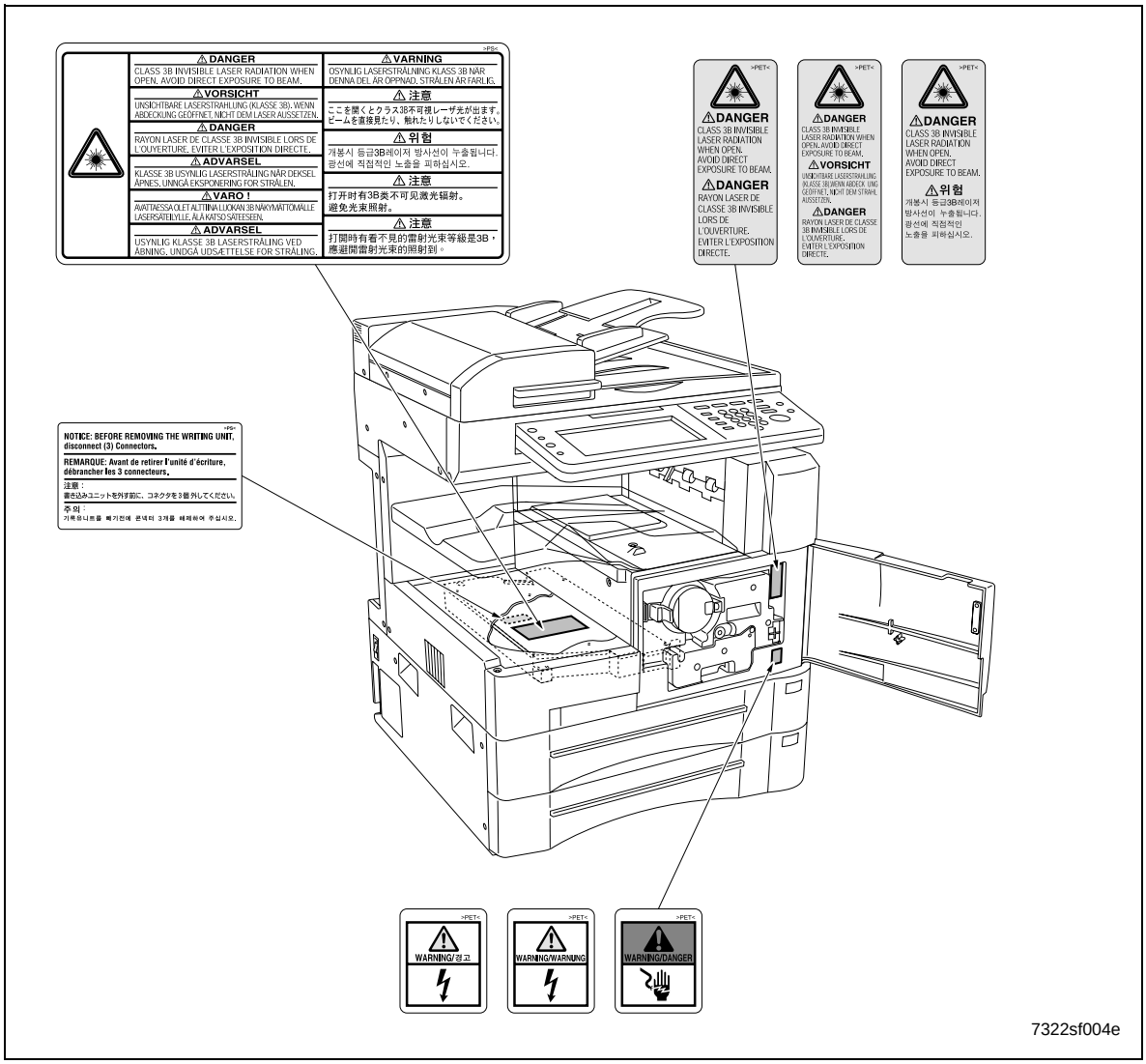
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

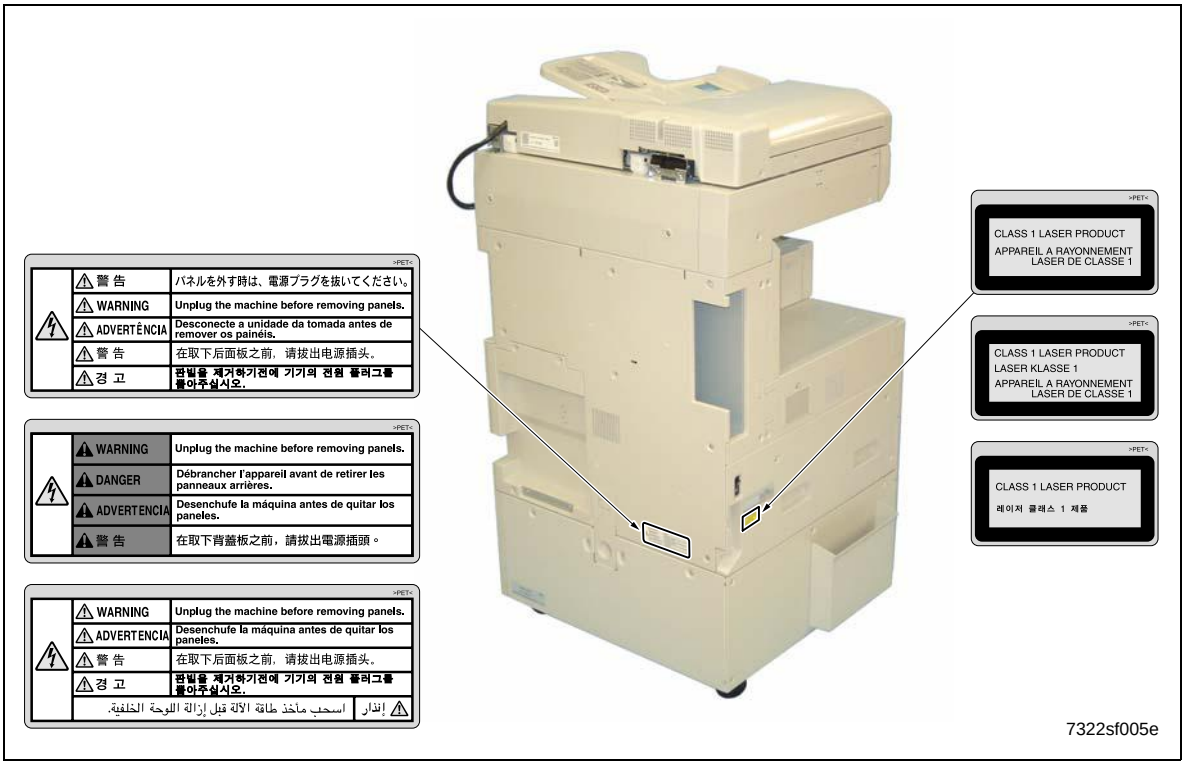
△3 <7235/7228/7222>



⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

⚠3 3. Rear/Left side (7235/7228/7222 only)

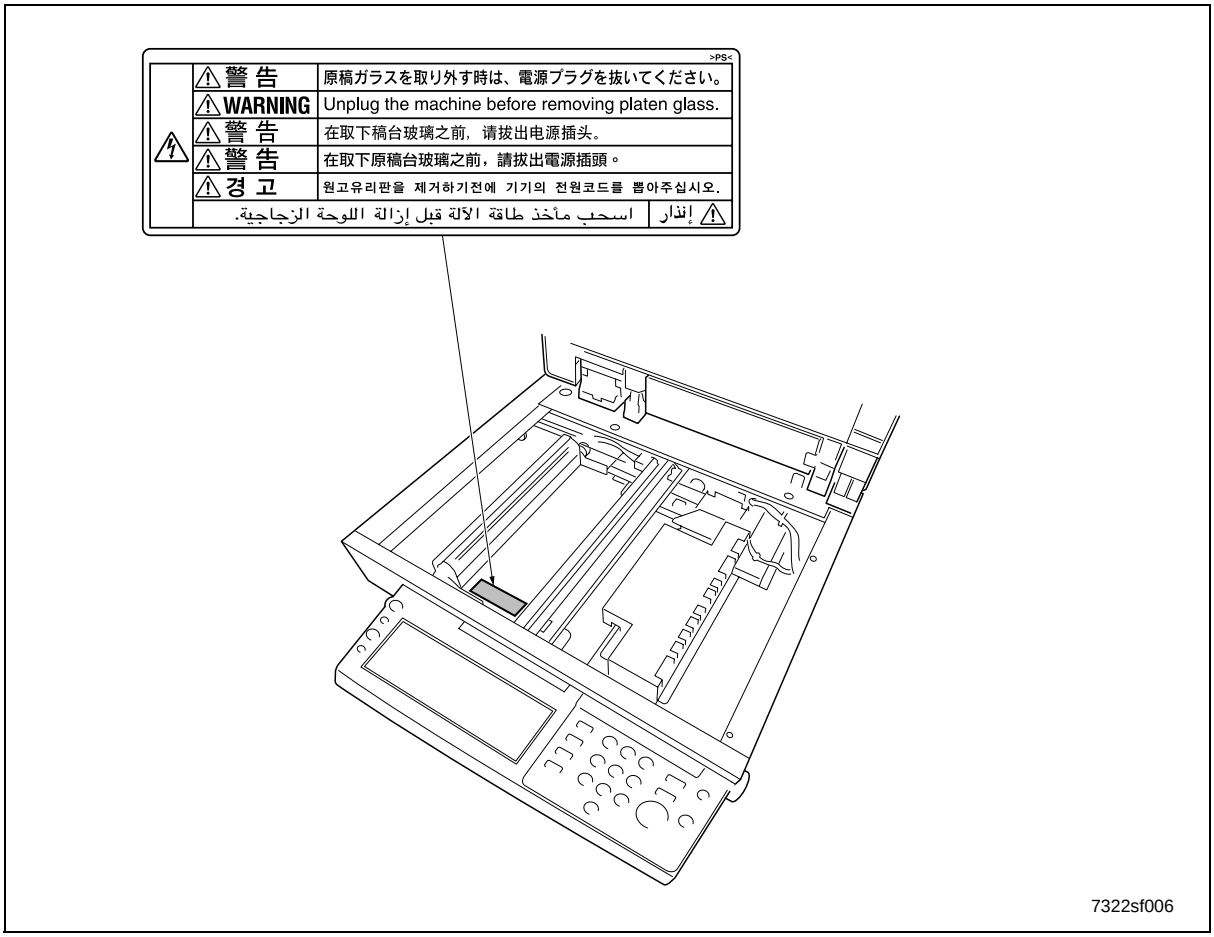


⚠CAUTION

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

4. Scanner section

△3 <7145>



⚠CAUTION

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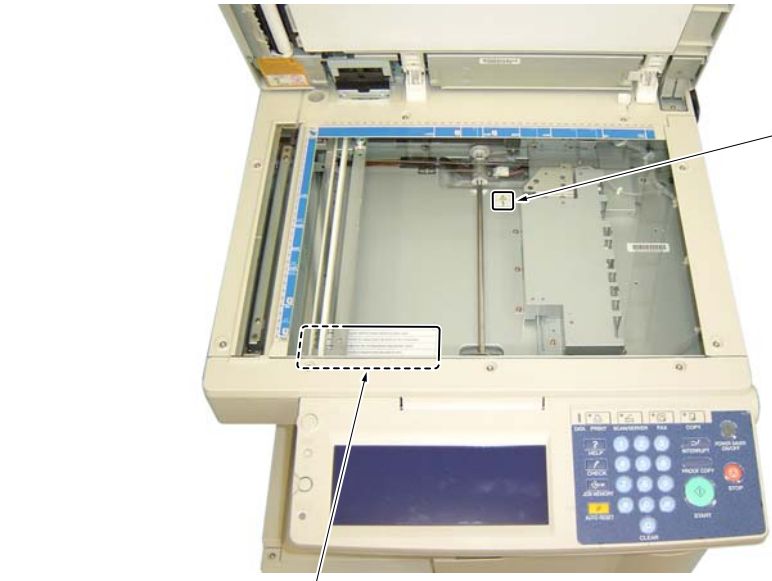
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

△3 <7235/7228/7222>



⚠警 告	原稿ガラスを取り外す時は、電源プラグを抜いてください。
⚠WARNING	Unplug the machine before removing platen glass.
⚠ADVERTÊNCIA	Desconecte a unidade da tomada antes de remover o vidro de exposição.
⚠警 告	在取下稿台玻璃之前，请拔出电源插头。
⚠경 고	원고유리판을 제거하기전에 기기의 전원코드를 뽑아주십시오.

⚠WARNING	Unplug the machine before removing platen glass.
⚠DANGER	Débrancher le copieur avant de retirer la vitre d'exposition.
⚠ADVERTENCIA	Desenchufe la máquina antes de quitar el vidrio.
⚠警 告	在取下原稿台玻璃之前，請拔出電源插頭。

⚠WARNING	Unplug the machine before removing platen glass.
⚠ADVERTENCIA	Desenchufe la máquina antes de quitar el vidrio.
⚠警 告	在取下稿台玻璃之前，请拔出电源插头。
⚠경 고	원고유리판을 제거하기전에 기기의 전원코드를 뽑아주십시오.
إنذار ⚠	اسحب مأخذ طاقة الآلة قبل إزالة اللوحة الزجاجية.

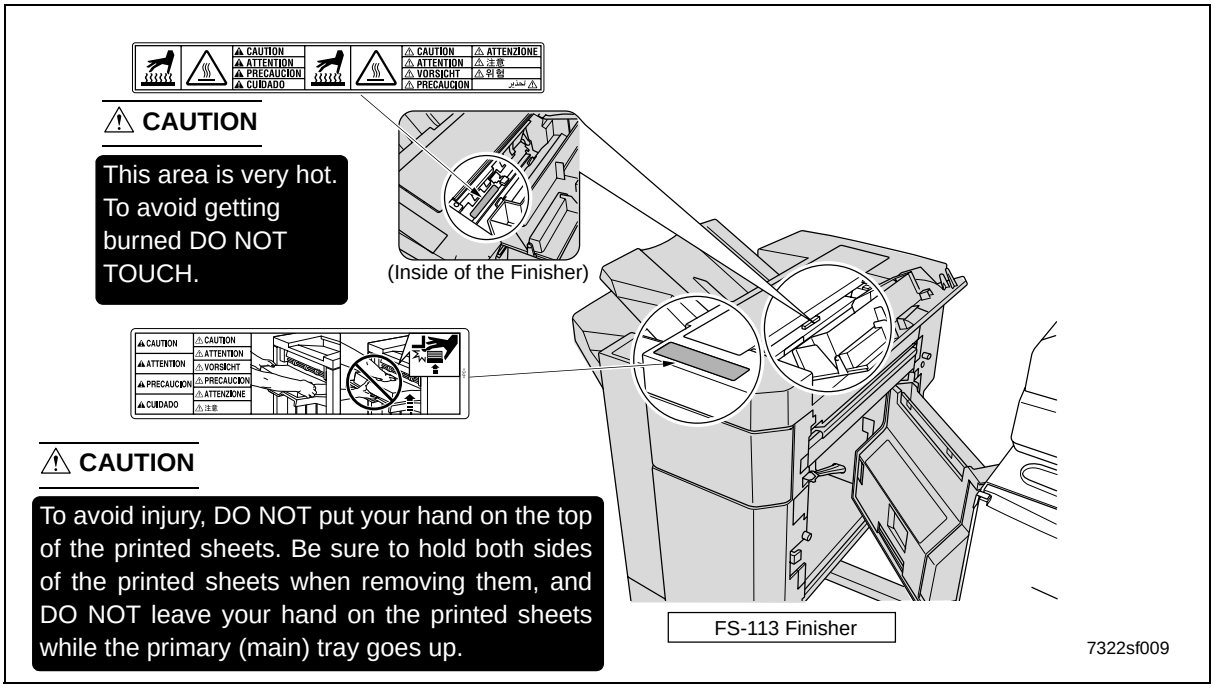
7322sf007e

⚠CAUTION

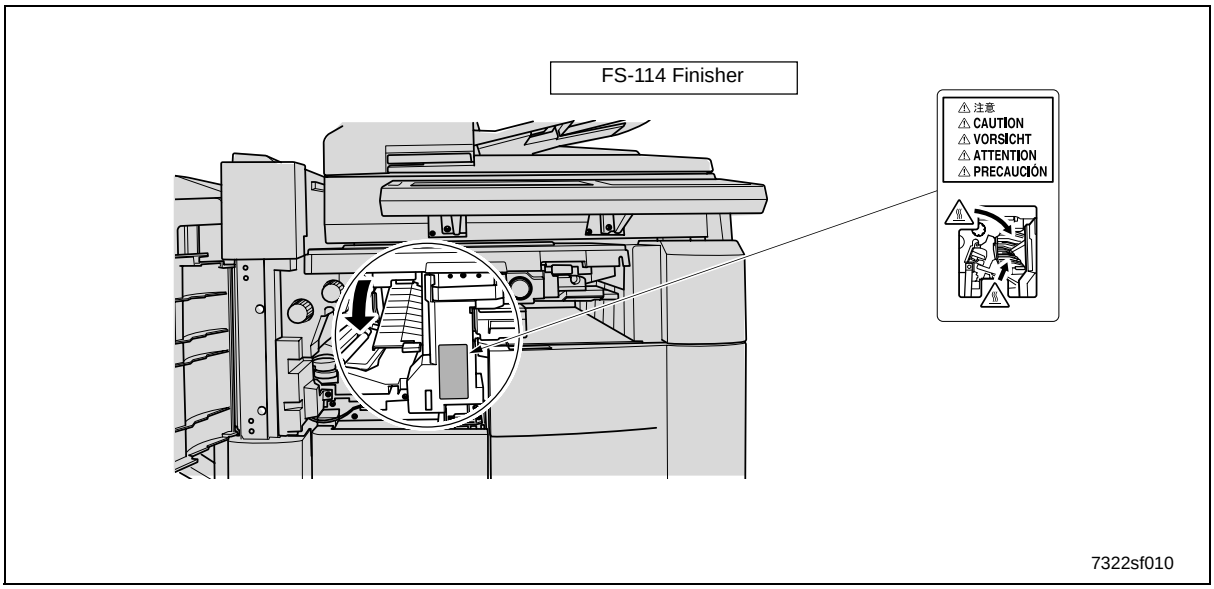
You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

△3

⚠3 [2] FS-113



⚠3 [3] FS-114



⚠CAUTION

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Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our Service Office.

I ADJUSTMENT

1. HOW TO USE THE ADJUSTMENT SECTION

1.1 Composition

This section details adjusting items and procedures.

A. Checking before starting work

Use this section for making adjustments and as a checklist before implementing corrective measures in the field.

1. Does the power supply meet the requirements?
2. Is the power supply properly grounded?
3. Is the machine sharing its power source with another high current consumption machine that draws large currents intermittently? (e.g. an elevator, air conditioner, or other source of electrical consumption)
4. Is the installation environment suitable?
   - The machine must be installed in a wellventilated place free from high temperature, high humidity and direct sunlight.
   - The machine must be installed on a level floor.
5. Does the cause of a defective image lie in the original itself?
6. Is the density adjusting control at the proper position?
7. Are the platen glass and the slit glass clean?
8. Is the correct paper being used for the copy?
9. Are the copying materials and parts replaced when they reach the end of their usable life? (developer, drum, cleaning blade, etc.)
10. Is there toner in the toner bottle?

B. Checkpoints when conducting on-site service

Be sure to pay due attention to the following when repairing the machine.

1. Only one side of the AC power line is disconnected when the main power of this machine is turned off. Always unplug the machine before beginning work. If absolutely necessary to work with the power on, exercise care to avoid being caught in the scanning rear of the exposure unit.
2. Special care should be taken when handling the fixing unit since it operates at extremely high temperatures.
3. The developing unit is surrounded by a strong magnetic field. Keep watches and metering equipment away from it.
4. Avoid scarring the drum with tools or similar objects.
5. Do not touch IC pins with your bare hands.

2. ADJUSTMENTS WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a defective copy image occurs, but also after replacing or reinstalling certain parts.

[How to use the tables]

The following items are used in the tables throughout this section.

1. Mode

   Indicates the adjustment mode.

   "25" : 25 mode
   "36" : 36 mode
   "47" : 47 mode

2. Symbols used in the tables

   ①, ② ..... : Indicates there is a priority sequence for adjustments (including checks) and settings.

   ○ (Empty circle) : Indicates adjustments (including checks) and settings that can be carried out independently.

3. LIST OF ADJUSTMENT ITEMS

	Adjustment classification		Adjustment items	Mode	Page	Drum	Developer	Fixing unit-related parts	Write unit	Parameter memory board	Paper feeding-related rubber rollers	RADF	RADF slit glass	E-RDH
1		PM counter resetting		25	1-30	①	○	○						
2		PM cycle set		25	1-30					○				
3	Process adjustment	L detection adjustment		36	1-46		①*1			○*2				
4	Process adjustment	Toner density adjustment		36	1-46		②		①	○				
5	Process adjustment	Dot diameter adjustment		36	1-47		③		②	○				
6	Process adjustment	LD1 offset adjustment		36	1-47	②	④		③	○				
△3 7	Process adjustment	LD2 offset adjustment (7145)		36	1-48	③	⑤		④	○				
8	Image adjustment	Magnification adjustment	Vertical magnification of printer	36	1-49				○	○	○			
9	Image adjustment	Magnification adjustment	Vertical magnification of scanner (platen)	36	1-51				○	○	○			
10	Image adjustment	Magnification adjustment	Vertical magnification of scanner (RADF)	36	1-52				○	○		○		
11	Image adjustment	Magnification adjustment	Horizontal magnification of scanner	36	1-51				○	○				
12	Image adjustment	Timing adjustment	Main body related	36	1-52				○	○	○			
13	Image adjustment	Timing adjustment	RADF	36	1-53				○	○		○		
14	Image adjustment	Timing adjustment	Paper feed loop amount adjustment	36	1-54					○				
15	Image adjustment	Timing adjustment	Leading edge original erasure adjustment	36	1-55				○	○				

△3

	Adjustment classification		Adjustment items	Mode	Page	Drum	Developer	Fixing unit-related parts	Write unit	Parameter memory board	Paper feeding-related rubber rollers	RADF	RADF slit glass	E-RDH
16	Image adjustment	Timing adjustment	Image read point adjustment	36	1-58				○	○				
17	Image adjustment	Centering adjustment	Main body related Centering adjustment	36	1-56				○	○				
18	Image adjustment	Centering adjustment	DBLT centering adjustment	36	1-56				○	○				
19	Image adjustment	Centering adjustment	RADF centering adjustment	36	1-58				○	○		○		
20	Image adjustment	RADF adjustment	RADF scanner density adjustment	36	1-65					○		○	○	
21	Drum count resetting	Drum count resetting		25/36	1-40	○								
22	Fixing unit related counter resetting	Fixing unit related counter resetting		25/36	1-68			○						
23	E-RDH memory check	E-RDH memory check		47	1-88									○

*1 After replacing the developer, be sure that you do not make any copies until you have first carried out L detection adjustment.

*2 When PRMB (Parameter memory board) is replaced, remember to replaced the developer before conducting the L deection adjustment.

Note:

- When replacing a board due to the SCB (System control board) being damaged, the PRMB (Parameter memory board) that was installed on the damaged SCB should be used as a rule on the new SCB.
  The use of a new PRMB should be limited only when it is considered that the PRMB is also damaged.
  On this occasion, adjustment data have not been input into the new PRMB and it is necessary to implement all of the adjustment items. In order to make the new PRMB effective, the 47 mode - 92 (output) should be carried out before implementation of the adjustment items.
- When the adjustment items have been implemented, the 47 mode - 96 (output) should be also executed.
  The adjustment data are backed up by implementing the 47-96 mode.
  For the original PRMB installed on the damaged SCB, the 47-92 mode is protected against inadvertent execution. For details of the cancellation of protection, contact the service manager of the authorized distributor.

⚠2 4. CE PASSWORD SETTING

Important:

- In order to prevent the malicious CE to access data and to change settings of the machine, ensure to change the CE password.

On key operator mode, if the enhanced security is enabled, CE password must be input to verify the CE to access the following service modes.

"36 mode"
"25 mode"
"47 mode"

Register a CE password by the following procedure.

A. Procedure

1. While the SW1 (main power switch) is ON, turn OFF SW2 (sub power switch)
2. Turn the SW2 ON while pressing 2 and 5 of the copy quantity setting buttons
   CE password input request screen appears.
3. Enter default password "92729272".
   On the LCD, basic screen for 25 mode appears.
4. Press [5. Password setting] key.
   Password setup screen appears.
5. Press [4. CE Password setting] key.
   CE password input screen appears.
6. Enter new 8-digit CE password then press [Set] key.
7. OFF/ON sub-switch to complete password input procedure and to exit from 25 mode.

Note:

- Only alphanumerical keys can be used for the password. Continuous single alphanumeric cannot be used for the password.
- In order to change the registered password, in the above step 3, enter current password and continue following steps.
- ⚠2 Do not use name, your birthday or employee code number as the password since other people can easily guess them.
- ⚠2 CE should not inform other people of the password.

5. MODE CHANGE MENU

5.1 Setting Method

The following modes can be selected on the mode change menu screen without turning OFF/ON the power supply:
"1 Basic screen"
"2 36 mode"
"3 25 mode"
"4 Key operation mode"
"5 47 mode"
"6 Exit"

A. Procedure

1. Turn on SW1 (main power switch) and SW2 (sub power switch).
2. Keep pressing the ∗ button until the message "Enter password for mode selection" appears.
3. Input 9272 as the password and press the [START] key. (The password is fixed and cannot be changed.)
4. ⚠2 Press the key of the mode to be selected on the screen.
   If enhanced security is enabled, enter CE password to access to "25 mode", "36 mode" and "47 mode". Enter Key operator password to access [Key operator mode].
5. To return to the "Mode Change Menu screen", keep pressing the ∗ button until the "Mode Change Menu screen" appears.
6. When the adjustment ends, press [6. Exit] key and the basic screen will appear.

6. CHECKING BY THE COUNTER KEY FUNCTION

The counter key function enables to display of the following parameters by using the counter button:
“1 Total count”
“2 Total count start date”
“3 PM count/PM count limit”
“4 PM count start date”
“5 Fax send paper count”
“6 Fax receive paper count”
“7 Printer count”
“8 Scanner count”
“9 Drum count”
“10 Developing count”
“11 Fixing unit count”

6.1 Checking Method of the Counter Key Function

A. Procedure

1. Turn on SW1 (main power switch) and SW2 (sub power switch).
2. Press the counter button.
3. The “Counter confirmation screen” appears, and the total count value appears. The counter that appears differs depending upon the installed option.
4. If you press the ! button on the “Counter confirmation screen”, service-related counters that indicate the PM count, and so on, appear.
5. To output the count value list, press the [PRINT] key.
6. Press the [OK] key or the stop button to return to the basic screen.

7. 25 MODE

Adjustment item menu			Remarks
1. Software DIPSW setting			See the “List of software DIPSW”.
2. PM COUNT/CYCLE	1. PM COUNT reset		
	2. PM CYCLE set		
	3. Counter clear	1. Drum related counter	
	3. Counter clear	2. Fixing related counter	
3. Collecting data	1. Count data collection	Data Collection 1 Copy count of each paper size RADF paper passage count	
	1. Count data collection	Data Collection 2 JAM occurrence count by each point	
	1. Count data collection	Data Collection 3 Copy count of each mode	
	1. Count data collection	Data Collection 4 SC count : F code	
	2. Periodic data collection starts		
4. Parts counter	1. Count of parts (Fixed)		
	2. Count of parts (Named)		
5. Password setting	1. Key operator password setting		8 digits
	2. User account (EKC) master key code setting		8 digits
	3. Weekly timer master key code setting		4 digits
	4. CE password setting		8 digits
6. Service TEL No. setting			Telephone & Fax. No. of service center setting.

Adjustment item menu		Remarks
⚠3 7. Serial number setting	1. Main body	Sets up the serial number display and the destination.
	2. Optional tray	
	3. LCT	
	4. Finisher	
	5. Fax	
	6. Printer	
	7. FL-102/FL-103	
	8. FS-114 punch unit	
	9. FS-114 saddle unit	
	10.RADF (7235/7228/7222)	
8. Indication of ROM version		Display each version of ROM.
9. KRDS setting		See the KRDS manual provided separately.
10. ISW		Rewrites the contents of the flash ROM of each board.
11. Indication of Root counter		Displays the root counter (total counter).
12. Setting date		Sets the starting date of the total counter.
13. Tray size setting		Set the paper size of LT-203.

.

7.1 Setting Method

A special operating mode called “25 Mode” has been provided with this machine. This mode enables rewriting of the non-volatile storage and specify other various settings.

A. Procedure

1. Turn OFF the SW2 (sub power switch) when the SW1 (main power switch) remains ON.
2. Turn the SW2 ON while pressing 2 and 5 of the copy quantity setting buttons.
   If enhanced security is enabled, CE password input request screen appears. Input the CE password.
   25 mode menu screen appears. At this moment, the machine turns to 25 mode and the normal copy operation is disabled.
3. Press the desired item key on the LCD screen. Each setting screen will appear.
4. Enter data in each selected screen.
5. Press the [RETURN] key to check the data that has been entered.
6. Turn the SW2 off to cancel the 25 mode.
7. New data will be effective after restarting.

7.2 Setting Software DIPSW

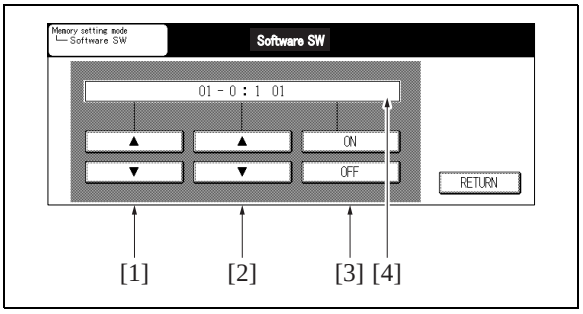
A. Setting method

This setting specifies the software DIPSW on the software SW setting screen.

Note:

- The bit of the DIP switch is written in the non-volatile memory every time it is changed.

B. Meaning of the values displayed on the screen



[1] DIPSW number
[2] Bit number (0 to 7)
[3] Bit data : 1:ON, 0:OFF
[4] 8-bit switch values in indicated in hexadecimals from 00 to FF.

C. Procedure

1. Enter the 25 Mode.
2. “25 mode menu screen”
   Press the [Software SW] key.
3. “Software setting screen”
   Select DIP switch number.
   Use the arrow key on the left.
4. Select bit number of the DIP switch.
   Use the arrow key at the center.
5. Select ON (=1) or OFF (=0) of the DIP switch.
   Use [ON] or [OFF] key.
   [ON] : Set bit.
   [OFF] : Clear bit.
6. Press the [RETURN] key to return to the “25 mode menu screen”.

- For each switch function, see “List of software DIPSW”.

List of software DIP SW

Note:

• Be sure not to change bits with no particular reference made of the function.

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW1	0	Operation when key counter is removed	Ignore	Instantaneous stop Jam	0	1	1
	1	A3 (11 x 17) counting method	Count as 1	Count as 2	0	0	0
	2	—	—	—	0	0	0
	3	Selection of maximum number of copies that can be stapled by FS-112/113	*1	*1	0	0	0
	4				0	0	0
	5	—	—	—	0	0	0
	6	—	—	—	0	0	0
△3	7	FS-112/114 limit on number of stapled sets	None	*	0	0	0
DIPSW2	0	Toner replenish stop timing 1	Decide with DIPSW 3-2	Stop after paper exited	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	1	1	1
	3	—	—	—	1	1	1
	4	—	—	—	0	0	0
	5	1-shot message display at automatic staple mode clearing	Yes	No	1	1	1
	6	—	—	—	1	1	1
	7	Prohibition of non-image area erases, repeat (auto) and original position correction	No	Yes	0	0	0
DIPSW3	0	Use F4 size for Latin America destination	No	Yes	0	0	0
	1	SC latch (F34/F35/F36)	Unlatched	Latched	0	0	0
	2	Toner replenish stop timing 2	When copying ends	Interval between copy set	0	0	0

△3 * FS-112: Message is displayed after stopping temporarily at 25 copies.
FS-114: Message is displayed after stopping temporarily at 20 copies.

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW3	3	Return to EKC screen after copying reservation	No	Yes	0	0	0
	4	—	—	—	1	1	1
③	5	—	—	—	0	0	0
	6	—	—	—	0	0	0
	7	—	—	—	0	0	0
DIPSW4	0	Toner level detection (“Supply toner” indication)	*2	*2	0	0	0
	1				0	0	0
	2	Condition for stopping copying after toner supply display	*3	*3	1	1	1
	3				1	1	1
	4	Non-display of advance/ delete buttons for job list	Yes	No	0	0	0
	5	Job stop when there is no toner left.	No	Yes	1	1	1
	6	Copy reservation allowed (corresponding to coin vendor)	Can reserve copying	Cannot reverse copying	0	0	0
	7	—	—	—	0	0	0
DIPSW5	0	—	—	—	0	1	0
	1	—	—	—	0	0	1
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	—	—	—	0	0	0
	5	Toner consumption reduction SW	*5	*5	0	0	0
	6				0	0	0
	7	—	—	—	0	0	0
DIPSW6	0	—	—	—	0	0	0
	1	K size selection SW for Taiwan destination	Metric sizes	K sizes available	0	0	0
	2	K size selection SW for Taiwan destination (By pass feed)	Metric sizes	K sizes available	0	0	0
	3	—	—	—	0	0	0

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW6	4	Timing for the polygon motor to stop/start to rotate at low speed	*6	*6	0	0	0
	5				1	1	1
	6	Setting for the polygon motor to stop/rotate at low speed	*7	*7	1	1	1
	7				0	0	0
DIPSW7	0	Selection of automatic erasure outside original	*8	*8	1	1	1
	1	Automatic restart after feeding paper (Other than Inch)	*9	*9	0	0	0
	2	Automatic conversion of paper size detected by APS (8.5 x 11/A4)	*10	*10	1	0	0
	3	Nonstandard-size notification for platen APS A4 (Japan, Metric)/8.5x11 (Inch)	*11	*11	0	0	0
	4	Nonstandard-size notification for platen APS B6 (Japan)/A5 (Metric)/5.5 x 8.5 (Inch)	*11	*11	0	0	0
	5	Password that requires 25/36/47 mode (9272)	Not required	Required	0	0	0
	6	Selection of A series size (Metric only)	No	Yes	0	0	0
	7	—	—	—	0	0	0
DIPSW8	0	—	—	—	1	0	0
	1	Changing of key operator fixed magnification setting	Permit	Prohibit	1	0	0
	2	Disabling copying when PM count reached	Permit	Prohibit	0	0	0
	3	—	—	—	0	0	0
	4	Priority tray when APS is released	*12	*12	0	0	0
	5				0	0	0
	6				0	0	0
	7	For checking the collected data 2 to 4 in the 25 mode	Display restricted	Display not restricted	0	0	0

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW9	0	Selection of copy quantity limit	*13	*13	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	Switching of message	*14	*14	0	0	0
	7				0	0	0
DIPSW10	0	Setting for summer time	*15	*15	0	0	0
	1				1	1	1
	2				1	1	1
	3				0	0	0
	4	Selection of magnification mode when APS function is cancelled	Display auto	1.00	0	0	0
	5	—	—	—	0	0	0
	6	Icon display in the LCD message display section (toner shortage, PM)	No	Yes	1	0	0
	7	Displaying of JAM code	No	Yes	0	0	0
DIPSW11	0	Release of the applied function when the RADF is open	No	Yes	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	—	—	—	0	0	0
	7	—	—	—	0	0	0

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW12	0	—	—	—	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	0	0	0
	3	Setting of PM count at which copying is inhibited	*16	*16	0	0	0
	4				0	0	0
	5				0	0	0
	6	KRDS connection recognition	Not recognize	Recognize	0	0	0
	7	F/E code screen switchover (except for F34, F35 and F36)	No	Switched (all in F code)	0	0	0
DIPSW13	0	—	—	—	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	0	0	0
	3	Selection of filter for jagged edges on slanting lines	ON	OFF	0	0	0
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	Judging level of the out-of-original auto erasure mode	*17	*17	1	1	1
	7				0	0	0
DIPSW14	0	Operation when stapling is not possible (Other than B6R, post card nonstandard)*	*18	*18	0	1	0
	1				0	1	0
	2	—	—	—	0	1	0
	3	—	—	—	0	1	0
	4	Operation when one position stapling is not available*	*19	*19	0	0	0
	5				0	0	0
	6	Operation when two position stapling is not available*	*20	*20	0	0	0
	7				0	0	0

* Common to FS-112/113

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW15	0	—	—	—	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	Stopping due to overloading when the FNS is not connected (when exiting 100 sheets)	Not stop	Stop	0	0	0
	7	Stopping due to overloading when the FNS, IT is not connected (when exiting 400 sheets)	Decided on DIPSW15-6	Stop	1	1	1
DIPSW16	0	Fixing temperature at low power mode	*21	*21	0	1	1
③	1				*a	0	0
	2	Operation of internal heater	Always ON	Heater off while in off mode	1	1	1
	3	Copying before execution of the L detection	Permit	Prohibit	1	1	1
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	Control of dot diameter adjustment	*22	*22	1	1	1
③	7				*b	*b	*b
DIPSW17	0	F4 size setting	*23	*23	0	0	0
	1				0	0	0
	2				0	0	0
	3	HOST printing cannot be performed when a key counter is installed	Printing takes place	Printer abort processing	0	0	0
	4	—	—	—	0	0	0
	5	Shift from bypass feed in ATS mode is inhibited	Shift inhibited	Shift possible	0	0	0
	6	—	—	—	0	0	0

③ *a Default value of the 7145 is “0”. Default value of the 7235/7228/7222 is “1”.

*b Default value of the 7145 is “0”. Default value of the 7235/7228/7222 is “1”.

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW17	7	Separation claw operation OFF mode (for machines destined for China)	Normal	OFF	0	0	0
DIPSW18	0	Tray 1 (main body upper stage), separation of defective part	Normal	Not allowed to use	0	0	0
	1	Tray 2 (main body lower stage), separation of defective part	Normal	Not allowed to use	0	0	0
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	Tray 3 (DB upper stage), separation of defective part	Normal	Not allowed to use	0	0	0
	5	Tray 4 (DB lower stage), separation of defective part	Normal	Not allowed to use	0	0	0
	6	Tray 5 (LT), separation of defective part	Normal	Not allowed to use	0	0	0
	7	DB is isolated	Normal	Not allowed to use	0	0	0
DIPSW19	0	Separation of defective part of printer controller	Normal	Not allowed to use	0	0	0
	1	Separation of defective part of FAX board	Normal	Not allowed to use	0	0	0
③	2	—	—	—	0	0	0
	3	Separation of defective part of HDD	Normal	Not allowed to use	0	0	0
	4	Separation of defective part of ADU	Normal	Not allowed to use	0	0	0
	5	Separation of defective part of scanner	Normal	Not allowed to use	0	0	0
	6	—	—	—	0	0	0
	7	Separation of defective part of RADF	Normal	Not allowed to use	0	0	0

	DIPSW No.	Bit	Functions	0	1	Default values		
						Japan	Inch	Metric
	DIPSW20	0	Separation of defective part of Network	Normal	Not allowed to use	0	0	0
		1	Separation of defective part of IEEE1284	Normal	Not allowed to use	0	0	0
		2	Separation of defective part of USB	Normal	Not allowed to use	0	0	0
		3	—	—	—	0	0	0
③		4	Separation of defective part of FNS	Normal	Not allowed to use (Offset not allowed to use)*	0	0	0
		5	Separation of defective part of the saddle	Normal	Not allowed to use	0	0	0
		6	—	—	—	0	0	0
		7	—	—	—	0	0	0
	DIPSW21	0	Platen size recognition selector switch 1 for Latin America (Inch only)	8.5 x 11	A4	0	0	0
		1	Platen size recognition selector switch 2 for Latin America (Inch only)	8.5 x 11R	A4R	0	0	0
		2	Platen size recognition selector switch 3 for Latin America (Inch only)	8.5 x 14	F4	0	0	0
		3	Notice of nonstandard small platen size (Inch only)	Notice of noticed size	Notice as non-standard size	0	0	0
		4	Job suspension/end at pull-ing out key counter	*24	*24	0	0	0
③		5	Notice of small size of platen mode (8.5x11/A4 or smaller)	Notice size detected by APS	Notice size as A4 (Japan, Met-ric) or 8.5x11 (Inch)	0	1	0
		6	Switching of the count-up function	*25	*25	0	0	0
		7	When using an EKC, the password screen appears at the end of each job	No	Yes	0	0	0

③ * The saddle is also detached.

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW22	0	—	—	—	1	1	1
	1	Nonstandard size becomes effective at automatic platen start	*26	*26	0	0	0
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	Indication of total count start day on counter key mode screen	No	Yes	0	0	0
	5	—	—	—	0	0	0
	6	—	—	—	0	0	0
	7	—	—	—	1	1	1
DIPSW23	0	Automatic changeover to Tray 1 when FNS tray is full*	No	Yes	1	1	1
	1	Automatic changeover to Tray 2 when FNS tray is full*	No	Yes	1	1	1
	2	Automatic changeover to Tray 3 when FNS tray is full*	No	Yes	1	1	1
	3	Automatic changeover to Tray 4 when FNS tray is full*	No	Yes	1	1	1
	4	100 sheets are exited when FNS is not stapled, and tray is detected full*	No	Yes	0	0	0
	5	100 sheets are exited when FNS is stapled, and tray is detected full*	No	Yes	1	1	1
	6	—	—	—	0	0	0
	7	Machine stops when fixing web count reaches to the limit	No	Yes	0	0	0

△3 * FS-112 only (7145)

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW24	0	—	—	—	0	0	0
③	1	—	—	—	1	1	1
	2	Automatic change of printer paper size	*27	*27	0	0	0
	3				0	0	0
	4	—	—	—	0	1	0
	5	—	—	—	0	0	1
	6	Punching of mixed size print job	Release punch automatically	Not release punch and continue	0	0	0
	7	Job stop changeover without print process stop	*29	*29	0	0	0
DIPSW25	0	Automatic changeover to tray 1 when the IT tray is full	No	Yes	0	0	0
	1	Automatic changeover to tray 2 when the IT tray is full	No	Yes	0	0	0
	2	—	—	—	0	0	0
	3	Switching of TSL control	Normal on/off	All off	0	0	0
	4	—	—	—	0	0	0
	5	For postcard-to-postcard copying, rotation takes place even when APS/AMS is not used	No	Yes	0	0	0
	6	180 degree rotation takes place even when there are no staples	No	Yes	0	0	0
	7	FAX transmission 8K/16K for machines destined for Taiwan	Image is transmitted in reduced form	Image is transmitted with both edges erased	0	0	0
DIPSW26	0	—	—	—	0	0	0
	1	—	—	—	0	0	0
	2	—	—	—	1	1	1
	3	Image position reference use for bypass feed copying on non-standard size paper	Center	Rear side of transfer paper	0	0	0
	4	Printer EKC mismatch print operation	Permit	Prohibit	0	0	0
	5	—	—	—	0	0	0

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
DIPSW26	6	The timer for canceling a job that was interrupted due to removal of the key counter is valid	Disabled	Enabled	0	0	0
	7	Scanner function	Yes	No	0	0	0
DIPSW27	0	Automatic copying reservation function	*30	*30	0	0	0
	1	Paper exit function with face up in the double sided copy mode (corresponding to letter head paper)	Not provided	Provided	0	0	0
	2	Permission SW for copying double sided special paper	Permit	Prohibit	0	0	0
	3	—	—	—	0	0	0
	4	Image rotation control when using scanner	Only those smaller than A4/letter rotate	Those larger than A4/letter also rotate	0	0	0
	5	Density setting when the printer toner save function is selected	*31	*31	0	0	0
	6				0	0	0
	7				0	0	0
DIPSW28	0	Leading edge position adjustment at image rotation	*37	*37	0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Image leading edge adjustment in platen memory copy	*38	*38	0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0
③ DIPSW29	0	Selection of the transfer/separation output of user paper (tray)	*32	*32	0	0	0
	1				0	0	0
	2				1	1	1
	3	TSL control of user paper (tray)	*33	*33	0	0	0
	4				0	0	0
	5	—	—	—	0	0	0
	6	—	—	—	1	1	1

	DIPSW No.	Bit	Functions	0	1	Default values		
						Japan	Inch	Metric
③	DIPSW29	7	Operation of the rear separation claw while in single-side printing	Not provided	Provided	0	0	0
	DIPSW30	0	Selection of the transfer/separation output of user paper (by-pass)	*34	*34	0	0	0
		1				0	0	0
		2				0	0	0
		3	TSL control of user paper (by-pass)	*35	*35	0	0	0
		4				0	0	0
		5	—	—	—	0	0	0
		6	—	—	—	0	0	0
		7	—	—	—	0	0	0
	DIPSW31	0	Automatic power on by RADF operation during the power save mode	*36	*36	1	1	1
		1	Use of E-mail	Permit	Prohibit	0	0	0
③		2	Use of scan to FTP	Permit	Prohibit	0	0	0
		3	Use of BOX	Permit	Prohibit	0	0	0
		4	—	—	—	0	0	0
		5	—	—	—	0	0	0
③		6	SMB function setting	No function provided	Function provided	1	1	1
		7	8.5 x 14 is detected for F4 size	F4	8.5 x 14	0	0	0
③	DIPSW32	0	Mode intended for automatic deletion of document	Except files received by PC-Fax	Delete all	0	0	0
		1	Konica Minolta Scan Distributor setting	No function provided	Function provided	0	0	0
		2	LDAP function setting	No function provided	Function provided	1	1	1
		3	—	—	—	0	0	0
		4	TiFF encoding system used when Scan To E-mail is employed	MMR	MH	0	0	0
		5	—	—	—	1	1	1
		6	—	—	—	0	0	0
		7	Job list name switch	file name	user name	0	0	0

	DIPSW No.	Bit	Functions	0	1	Default values		
						Japan	Inch	Metric
③	DIPSW33	0	Number of punch hole	*39	*39	0	0	0
		1				0	0	0
		2	Notice of the paper feed tray when a coin bender is being used with APS prohibited	Invalid	Valid	0	0	0
		3	Change-over of the display of FAX transmitting address	Invalid	Valid	0	0	0
		4	Change-over of the display of BOX related list password	"*" Displayed	Displayed normally	0	0	0
		5	—	—	—	0	0	0
		6	KRDS/RDmode change (7145)	KRDS	RDmode	0	0	0
		7	Mixplex function setting	Valid	Invalid	0	0	0
③	DIPSW34	0	System OFF setting when the system is shut off or SW2 (sub-power) is turned off	Not set	Set	0*a	0*a	0*a
		1	FS-114 paper exit tray position	*40	*40	0	0	0
		2				0	0	0
		3				0	0	0
		4	Printing starts when paper is provided in the FS-114 saddle	Permit	Prohibit	0	0	0
		5	Correspondence to Open-Print	Not corresponding	Corresponding	0	0	0
		6	USB Print	Not corresponding	Corresponding	1	1	1
		7	Overlay void setting (7235/7228/7222 only)	Not set	Set	0	0	0
③	DIPSW35	0	Paper exit to entire A5R finisher tray	Prohibit	Permit	0	0	0
		1	—	—	—	0	0	0
		2	—	—	—	0	0	0
		3	—	—	—	0	0	0
		4	—	—	—	0	0	0
		5	—	—	—	0	0	0
		6	—	—	—	0	0	0
		7	—	—	—	0	0	0

③ *a In the case of the 7235/7228/7222, default value is "1".

DIPSW No.	Bit	Functions	0	1	Default values		
					Japan	Inch	Metric
③ DIPSW40	0	Use of SNMP	Permit	Prohibit	0	0	0
	1	—	—	—	1	1	1
	2	—	—	—	0	0	0
	3	—	—	—	0	0	0
	4	—	—	—	0	0	0
	5	—	—	—	0	0	0
	6	—	—	—	0	0	0
	7	—	—	—	0	0	0

*1 FS-112 stapling upper limit

Mode	1-4	1-3
50 sheets	0	0
45 sheets	0	1
40 sheets	1	0
35 sheets	1	1

*2 Toner level detection (toner supply display)
After the TLD (Toner level sensor) detects the no toner condition for more than a specified period of time, this sets a timing for displaying the message “Please supply toner”.

Mode	4-1	4-0
0 effective copies	0	0
100 effective copies	0	1
200 effective copies	1	0
500 effective copies	1	1

*3 Condition for stopping copying after toner supply display
After displaying a message set in DIPSW4-0/-1, the count up to which the copy is prohibited is set.

Mode	4-3	4-2
100 effective copies	0	0
400 effective copies	0	1
700 effective copies	1	0
1000 effective copies	1	1

⚠1

*5 SW for decreased toner consumption
Decreasing the developing bias, charging grid potential by 50V (20 step) in this setting allows the consumption of toner to be reduced. Increasing the potential by 50V (20 step) allows the image density to increase a little.

Mode	5-6	5-5
No adjustment	0	0
Toner consumption increased (image density increased)	0	1
Toner consumption decreased (image density decreased)	1	0
No adjustment	1	1

*6 Timing for the polygon motor to stop/start a low speed rotation
When the setting of the polygon motor is made for stopping or a low speed rotation, the motor is shifted into a low speed rotation or stopping after the elapse of time specified by this DIPSW. The elapsed time starts either at one of the following:

- When the warm-up is completed.
- When the final operation of the operation keys (except the start key)/RADF/tray while in idling.
- When the output of a copy or print job is completed.

Mode	6-5	6-4
15 seconds	0	0
30 seconds	0	1
60 seconds	1	0
120 seconds	1	1

*7 Setting of the polygon motor for stopping or low speed rotation

In order to reduce the sound of rotation of the polygon motor while in idling, it is possible to switch the rotation of the polygon motor either to a low speed rotation or stopping. The timing for the switching is set based on *6 Timing for the polygon motor to stop/start a low speed rotation. When the polygon motor is stopped or rotating at low speed, the time required for the first copy being made is increased.

Mode	6-7	6-6
No preliminary rotation (high speed)	0	0
Preliminary rotation (low speed)	0	1
Stopping	1	0

*8 Out-of-original auto erasure

When the AMS has been released due to the original size being not the same as that of the transfer paper size, this setting is used in the platen copy to decide whether the out-of-original area is erased or not. This is the same function as the memory switch function in the key operator mode. (Switching is not available in the RADF copy mode.)

Mode	7-0
Out-of-original auto erasure	0
Out-of-original erasure only while in APS/AMS	1

*9 Automatic re-starting after paper supply (excluding inch system)

Mode	7-1
Re-starting by turning on the START button	0
Re-starting by setting the tray (automatic)	1

*10 Automatic conversion of the APS detected paper size (8.5 x 11/A4)

The paper size detected by the APS is automatically converted according to the standard shown below before being copied.

Mode	7-2
No automatic conversion	0
A4 → 8.5 x 11 (Inch) 8.5 x 11 → A4 (Japan, Metric)	1

*11 Switching of non-standard size notice of platen APSA4 (Japan/Metric), 8.5 x 11 (inch)

When the original size is detected as a non-standard size, the switching is made to decide a copying method: a copy is made forcibly into the following size or it is made in the size selected as a non-standard size.

When both the DIPSW 7-3 and 7-4 are 1, the DIPSW7-4 has preference over 7-3.

Mode	7-3
Copied in the size selected	0
Copied forcibly as A4 (Japan, Metric) /8.5 x 11 (Inch)	1

Mode	7-4
Copied in the size selected	0
Copied forcibly as B6 (Japan) /A5 (Metric)/5.5 x 8.5 (Inch)	1

*12 Priority tray when APS is released

This setting sets the tray selection used when APS is set OFF from key-operator mode.

Mode	8-6	8-5	8-4
No priority	0	0	0
Main-body upper tray	0	0	1
Main-body lower tray	0	1	0
DB upper tray	0	1	1
DB lower tray	1	0	0

*13 Copy quantity limit

Mode	9-3	9-2	9-1	9-0
No limit	0	0	0	0
1 sheet	0	0	0	1
3 sheets	0	0	1	0
5 sheets	0	0	1	1
9 sheets	0	1	0	0
10 sheets	0	1	0	1
20 sheets	0	1	1	0
30 sheets	0	1	1	1
50 sheets	1	0	0	0
99 sheets	1	0	0	1

*14 Switching of message

Mode	9-7	9-6
Please insert key counter	0	0
Please insert copy card	0	1
Please insert coin	1	0

*15 Summer time setting

Mode	10-3	10-2	10-1	10-0
0 minute	0	0	0	0
30 minutes	0	0	1	1
60 minutes	0	1	1	0
90 minutes	1	0	0	1
120 minutes	1	1	0	0
150 minutes	1	1	1	1

*16 Setting of the number of copies until the copying operation is prohibited when PM is attained

If the setting of the copy prohibition when DIPSW8-2 reaches PM is “1”, the copying operation is stopped after the following PM count is reached.

Mode	12-5	12-4	12-3
1000 copies	0	0	0
2000 copies	0	0	1
3000 copies	0	1	0
4000 copies	0	1	1
5000 copies	1	0	0

*17 Judging level in the out-of-original auto erasure mode

This setting is for the application function of the out-of-original auto erasure mode. When the out-of-original auto erasure is set to “automatic” in the key operator mode, a threshold value is set for detection of the original area.

Mode	13-7	13-6
Thick original	0	0
Normal original	0	1
Corresponding to hybrid lights	1	0
—	1	1

*18 Operation if stapling is not possible

The positioning of staples is made against the image of an original. Since stapling is restricted only to the front or rear of the leading edge (the main body side of the paper exited) of the transfer paper, or to both of these two positions, stapling may be sometimes unavailable (when stapling is not allowed) depending on the position specified. This SW is used to set the operation when stapling is not allowed.

Mode	14-1	14-0
Auto cancel	0	0
Auto switching to 1-position stapling	0	1
Inhibit	1	0
Forced 2-position stapling mode operation	1	1

*19 Operation when one position stapling is not available

Mode	14-5	14-4
Auto cancel	0	0
Auto cancel	0	1
Inhibit	1	0
Forced 1-position stapling mode operation	1	1

*20 Operation when two position stapling is not available

Mode	14-7	14-6
Auto cancel	0	0
Auto cancel	0	1
Inhibit	1	0
Forced 2-position stapling mode operation	1	1

*21 Fixing temperature at low power mode
Set the fixing temperature while in the low power mode.

△3 In the case of the 7145

Mode	16-1	16-0
155°C	0	0
120°C	0	1
85°C	1	0
85°C	1	1

△3 In the case of the 7235/7228/7222

Mode	16-1	16-0
70°C	0	0
120°C	0	1
120°C	1	0
70°C	1	1

*22 Dot diameter adjustment control
In this setting, the SW is used to change the timing for the dot diameter adjustment.

△3 Mode	16-7	16-6
The power is off for more than 8 hours with humidity over 60%	0	0
The power is off for more than 8 hours (7145)	0	1
At all times (Every time SW2 is turned on)	1	0
Non (7235/7228/7222)	1	1

*23 F4 size setting

Mode	17-2	17-1	17-0
8.5 x 13	0	0	0
8.25 x 13	0	0	1
8.125 x 13	0	1	0
8 x 13	0	1	1
8.5 x 13.5	1	0	0

*24 Job interruption/termination operation when the key counter is being drawn out
This is to set the operation of the copier when outputting a print job.
The details of the operation can be changed by the combination of this setting and the DIPSW1:0 setting.

Mode	21-4
DIPSW1-0:0 Terminate by stopping paper feed DIPSW1-0:1 Clear jamming immediately	0
DIPSW1-0:0 Interrupt by stopping paper feed DIPSW1-0:1 Clear jamming immediately	1

*25 Switching of the count-up function

Mode	21-6
Normal operation Counting up for both the total counter and the key counter	0
• While in copying, both the total counter and the key counter count up • In the printer/FAX mode, only the total counter counts up	1

*26 Automatic feed of non-standard size originals in the platen auto start mode

The setting of the automatic selection of auto-start is available for the memory switch setting in the key operator mode. When this setting is in the following condition, a setting can be made to decide if the paper is automatically fed from the bypass tray.

- The setting of the automatic selection of auto-start is on with the original size (platen) detected as non-standard.

Mode	22-1
Auto start does not take place	0
Auto start takes place when the bypass tray is selected	1

*27 Printer paper size automatic conversion

The paper size specified by the print job is automatically changed and output according to the following standard.

Mode	24-2	24-3
No conversion	0	0
Inch → Metric	0	1
Metric → Inch	1	0
Non (not allowed to select)	1	1

⚠1

*29 Switching of the job stop with no process stop

The SW is used to decide if a process stop is made at the breaks between continuous two or more jobs reserved.

Mode	24-7
No process stop	0
Process stop	1

*30 Automatic copy reservation function

When this setting is “1”, the copy reservation screen automatically appears after the end of the original read operation. Also, the job settings are the same as the settings for the previous job.

Mode	27-0
Do not use	0
Use	1

*31 Density setting when the toner save function is selected in the printer driver screen

When “Toner saving mode” is on in the printer driver, the print density is set in the range shown below.

This setting is effective only for the PCL and PS versions.

Mode	27-7	27-6	27-5
Standard	0	0	0
-4 (Lighter)	0	0	1
-3	0	1	0
-2	0	1	1
-1	1	0	0
+1	1	0	1
+2	1	1	0
+3 (Darker)	1	1	1

*32 Selection of the transfer/separation output of the user paper (tray)

This SW is used to set the transfer/separation output which is applicable when the specified paper is selected in the “Paper type setting” in the key operator mode.

Mode	29-2	29-1	29-0
Plain paper (Japan)	0	0	0
Plain paper (Inch)	0	0	1
Plain paper (Metric)	0	1	0
Thick paper	0	1	1
Thin paper	1	0	0
Recycled paper	1	0	1

*33 TSL control of user paper (tray)

This SW is used to set the TSL control which is applicable when the specified paper is selected in the "Paper type setting" in the key operator mode.

When this SW is used to select the "Switched according to the environment", the switching is made between "Normal control" and "All off" according to the environment.

- "Switched according to the environment" performs the TSL control according to the humidity detected by the main body HUM1 (Humidity sensor).

Mode	29-4	29-3
Normal control	0	0
All off	0	1
Switched according to the environment	1	0

*34 Selection of the transfer/separation output of user paper (bypass feed)

When selecting the bypass tray on the copy basic screen, this SW is used to set the transfer/separation output which is applicable when selecting the user specified paper for "Special paper setting" or the specified paper for "Paper type setting" in the key operator mode.

Mode	30-2	30-1	30-0
Plain paper (Japan)	0	0	0
Plain paper (Inch)	0	0	1
③ Plain paper (Metric)	0	1	0
Thick paper	0	1	1
Thin paper	1	0	0
Recycled paper	1	0	1

*35 TSL control of user paper (bypass feed)

When selecting the bypass tray on the copy basic screen, this SW is used to set the TSL control which is applicable when selecting the user paper for "Special paper setting" or the specified paper for "Paper type setting" in the key operator mode.

When this SW is used to select the "Switched according to the environment", the switching is made between "Normal control" and "All off" according to the environment.

- "Switched according to the environment" performs the TSL controle according to the humidity detected by the main body HUM1 (Humidity sensor).

Mode	30-4	30-3
Normal control	0	0
All off	0	1
Switched according to the environment	1	0

*36 Automatic power on by the RADF operation during the power save mode

In this setting, when the following operation is made during the power save mode, the power is automatically turned on.

- When the original is set in RADF (when the PS301 (No original sensor) is turned off).
- When the platen/RADF is opened (when PS15 (APS timing sensor) is turned off).
- When the platen/RADF is closed (when PS15 (APS timing sensor) is turned on).

Mode	31-0
Disabled	0
Enabled	1

*37 While rotating image during copying 1-2 mode, leading edge of the 2nd side shifts 3 to 4mm. This dipswitch is to adjust that shift.

Mode	28-3	28-2	28-1	28-0
+0mm	0	0	0	0
+0.5mm	0	0	0	1
-0.5mm	1	0	0	1
+3.5mm	0	1	1	1
-3.5mm	1	1	1	1

*38 In platen copy mode, the paper exit direction is opposite between normal copy and memory copy. Then the image position is not the same.
This amount of gaps is adjusted by this dipswitch.

△3

Mode	28-7	28-6	28-5	28-4
+0mm	0	0	0	0
+0.5mm	0	0	0	1
-0.5mm	1	0	0	1
+3.5mm	0	1	1	1
-3.5mm	1	1	1	1

*39 When using FS-113 (FS-114), number of punch holes can be set independently from engine specifications.

Mode	33-1	33-0
Default	0	0
2-hole only	0	1
2-hole or 3-hole is selectable	1	0
4-hole only	1	1

△3 *40 FS-114 paper exit tray position

Mode	34-3	34-2	34-1
Undefined	0	0	0
Tray 1	0	0	1
Tray 2	0	1	0
Tray 3	0	1	1
Folding/Stitch-and-fold tray	1	0	0

7.3 PM Count Setting

This function resets the PM count and sets the PM cycle. Care should be taken to reset the PM count properly. The PM count/cycle menu includes the following:
[1. PM count resetting]
[2. PM cycle setting]
[3. Counter clear]

7.3.1 PM count reset

Select whether to reset the count in the PM count reset screen.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [2. PM COUNT] key.
3. "PM Count/Cycle Menu screen"
   Press the [1. PM count reset] key.
4. "PM Count Reset screen"
   Press the [YES] key.
   The PM count is reset.
   Press the [NO] or [RETURN] key.
   The PM count is not reset and returns to the PM count/cycle menu screen.

7.3.2 Entering PM count start date

When resetting the PM count, it is necessary to input the start date, and the screen below will appear automatically.

A. Procedure

1. "PM Count Starting Date Input screen"
   Enter a PM count start date from the numeric keys.
2. Press the [SET] key to enter the data that has been entered.
3. Press the [RETURN] key to return to the PM count/cycle menu screen.

Note:

- When pressing the [RETURN] key without pressing the [SET] key, the PM count start date is not changed. It is necessary to reset the count again for inputting the count.

7.3.3 Setting of PM cycle

Set PM Cycle as follows:

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [2. PM COUNT] key.
3. "PM Count/Cycle Menu screen"
   Press the [2. PM CYCLE Set] key.
4. "PM Cycle set screen"
   Enter PM cycle from the numeric keys. Enter upper 3-digit (hundred thousand, ten thousand, thousand) only.
5. Press the [SET] key to enter a PM cycle that has been entered.
6. Press the [RETURN] key to return to the PM count/cycle menu screen.

7.3.4 Counter clear

△3 **Reference:**

- The operation here is the same as [8. Counter clear] of the "36 mode menu screen".

The counter must be cleared whenever the drum or fixing parts/unit is replaced.
Select the [2. PM Count] and press the [3. Counter clear] key from the "25 mode menu screen" to display the counter clear screen.
Following menu options are available from this screen.

- Drum related counter (Drum counter, Drum drive counter).
- Fixing related counter (Fixing web counter).

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [2. PM Count] key.

3. "PM count/cycle setting screen"
Press the [3. Counter clear] key.
4. "Counter clear screen"
Press the key corresponding to the item to be cleared.
5. Message in the message display area will confirm if you really want to clear the item. Press the [YES] key. When the item is cleared, the "Counter clear screen" will be restored.
6. When clearing another counter, repeat above steps 3 and 4.
7. Press the [RETURN] key twice to return to the "25 mode menu screen".

7.4 Data Collection

△3

This function enables viewing of the various data recorded in the machine. Also, it is possible for the collected data to be checked by KRDS and management listing. The data collection menu includes the following:

- Count data collection
- Area data collection start (Date count data)

A. Data that can be checked

No.	Classification	Pre-peration
1	Copy count of each paper size	—
	RADF paper passage count	
2	Count of JAM occurrence by each point	Enter the 25 mode ↓ Select [1. Software SW] ↓ Set the address to 8-7:1 (Note)
3	Copy count of each mode	
4	Count of SC occurrence	

Note:

- When the DIPSW8-7 is set to 0, the checking of the collected data is limited only to No. 1.

B. Checking method of the collected data

(1) Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
Press the [Data collection] key.
3. "Data collection menu screen"
Press the [Count data] key.
4. "Data collection screen"
Change the data number with the arrow key. Pressing [NEXT] key enables display of next data collection screen.
5. Press the [RETURN] key to return to the data collection menu screen.

- The data is displayed at the line 2 in the message display area as "Data number (No.): Count value (00000000)".
- Press and hold the arrow key to display the next items continuously.

Note:

- In order to check the collected data 2 to 4, be sure to make preparations given in "Collected data list" in advance.

C. Data collection details

(1) Data collection 1

a. Copy count by each size

Classification	Size No.	Paper size for destination			KRDS (B1, B6, B7, B8)
		Japan	Metric	Inch	
Copy count of each paper size	0	A3	A3	11 x 17	01
	1	B4	B4	8.5 x 14	02
	2	A4/A4R	A4/A4R	8.5 x 11/8.5 x 11R	03
	3	B5/B5R	B5/B5R	5.5 x 8.5	04
	4	A5	A5	—	05
	5	B6	F4	—	06
	6	8.5 x 14	—	—	07
	7	8.5 x 11/8.5 x 11R	—	A4/A4R	08
	8	Metric	Metric	Inch	09
		Special	Special	Special	
	9	Postcard	—	—	0A

Maximum count number : 99,999,999

b. Scanner and counting of the number of FAX scans

Classification	Size No.	Feed mode	KRDS (BA)
Count of the No. of scan image planes	10	Other than 11 x 17, 8.5 x 14, A3 and B4	01
	11	11 x 17, 8.5 x 14, A3 and B4	00

Maximum count number : 99,999,999

c. Count RADF original feed quantities

Classification	Size No.	Feed mode	KRDS (F0)
RADF paper passage count	15	ADF mode original feed counter	00
	16	RADF mode original feed counter	01
	17	ADF mixed original mode original feed counter	07
	18	RADF mixed original mode original feed counter	08

Maximum count number : 99,999,999

(2) Data collection 2

a. Jam occurrence count by factor

No.	Jam	Point	KRDS (J0)
00	10-0	By-pass	00
01	11-0	Upper tray	01
02	12-0	Lower tray	02
03	13-0	DB upper tray	03
04	14-0	DB lower tray	04
05	16-1	Paper feed jam	05
06	15-0	LT tray	06
07	16-2	LT tray	07
08	—	—	08
09	30-0	Conveyance jam	09
10	31-0	Conveyance jam	0A
11	—	—	0B
12	—	—	0C
13	32-0	Fixing unit conveyance jam	0D
14	—	—	0E
15	—	—	0F
16	75-10	IT-101	10
17	75-11		11
18	—	—	12
19	97-1	ADU conveyance jam	13
20	97-2		14
21	92-0		15
22	75-12	IT-101	16
23	75-13		17
△3	24	61-1	DF-318/320	18
25	61-2		19
26	—	—	1A
△3	27	62-1	DF-318/320	1B
28	62-2		1C
29	62-3		1D
30	62-4		1E
31	62-5		1F
32	—	—	20
△3	33	63-1	DF-318/320	21
34	63-2		22
35	63-3		23
36	63-4		24
37	—	—	25
38	—	—	26
39	—	—	27
40	—	—	28
41	—	—	29
42	72-16	FS-112/113	2A
43	72-17		2B
44	72-18	FS-113	2C
45	72-19	FS-112	2D
46	72-21	FS-112/113	2E
47	72-23	FS-112	2F
48	72-81	FS-112/113	30
49	72-82	FS-113	31
50	72-83		32
△3	51	72-25	FS-114	33
52	72-43		34
53	72-84		35
54	72-85		36
55	—	—	37
	:		
79	—	—	4F
80	—	—	50

Maximum count number : 999,999

(3) Data collection 3

a. Copy count of each mode

No.	Contents	KRDS (F1)
00	Platen single side → single side	00
01	—	01
02	RADF double side → single side	02
03	RADF double side → double side	03
04	RADF single side → single side	04
05	RADF single side → double side	05
06	Finisher (Staple mode)	06
07	Finisher (Sort mode)	07
08	Finisher (Group mode)	08
09	Finisher (Number of stapling)	09
10	Life-size	0A
11	Fixed ratio E3(1.41/2.00)	0B
12	Fixed ratio E2(1.22/1.55)	0C
13	Fixed ratio E1(1.15/1.29)	0D
14	Fixed ratio R1(0.86/0.77)	0E
15	Fixed ratio R2(0.82/0.65)	0F
16	Fixed ratio R3(0.71/0.50)	10
△3	17	User set magnification	11
18	Zoom	12
19	Maximum zoom	13
20	Minimum zoom	14
21	AMS mode	15
22	APS mode	16
23	AE mode	17
24	Interrupt mode	18

No.	Contents	KRDS (F1)
25	By-pass feed mode	19
26	Book copy mode	1A
27	Frame erase mode	1B
28	Fold erase mode	1C
29	Image shift mode	1D
30	Reduction image shift mode	1E
31	—	1F
32	—	20
33	Number of paper feed quantities at intersheet mode	21
34	—	22
35	Number of feed in the OHP mode (blank paper interleave)	23
36	Number of paper feed quantities at mixed original mode	24
37	Access number of the JOB memory call mode (Number of pressing the * button)	25
38	Number of times the auto low power mode is used	26
39	Number of starting copy with copy quantity is set to 1	27
40	Number of starting copy with copy quantity is set between 2 and 5	28
41	Number of starting copy with copy quantity is set between 6 and 10	29
42	Number of starting copy with copy quantity is set to 11 or above	2A
43	Number of starting copy in intersheet mode	2B
44	—	2C
45	Photo mode	2D
⚠3 46	Passage count in the ADF thick paper mode	2E
47	Verti./Horiz. zoom mode	2F
48	Memory copy mode	30
⚠3 49	Proof copy mode	31
50	Text/Photo mode	32
51	Text mode	33
⚠3 52	User set density mode	34
53	Number of feed in the OHP mode (copy interleave)	35
54	—	36
55	—	37
⚠3 56	Cover insertion mode	38
57	Chapter mode	39
58	2 in 1, 4 in 1, 8 in 1 mode	3A

No.	Contents	KRDS (F1)
59	Repeat mode	3B
⚠3 60	Reverse image mode	3C
61	Non-image area erase mode	3D
62	Increase contrast mode	3E
⚠3 63	Auto layout mode	3F
64	—	40
65	Number of copies in rotation	41
66	Copy quantity of paper feed from tray 1	42
67	Copy quantity of paper feed from tray 2	43
68	Copy quantity of paper feed from tray 3	44
69	Copy quantity of paper feed from tray 4	45
70	—	46
71	—	47
72	Finisher, Number of stapling (front)	48
73	Finisher, Number of stapling (rear)	49
74	Booklet mode copying count	4A
75	OHP mode (without doubled sheet) copying count	4B
76	Z-fold mode copying count	4C
77	Copy quantity in the non-standard size mode	4D
78	Stamping/overlay mode copying count	4E
⚠3 79	Flip side 2 mode copying count	4F
80	Number of copies in the punch mode	50
81	—	51
82	Number of copies in the thick paper 1 copy mode	52
83	Number of copies in the thick paper 2 copy mode	53
84	Number of copies in the plain paper mode	54
85	Number of copies in the thin paper mode	55
86	Number of copies in the recycled paper mode	56
87	Number of copies in the user specified paper mode	57

Maximum count number : 99,999,999

(4) Data collection 4

a. Count number of SC occurrence

No.	Error code (decimal number)		Classification	KRDS	
	Main code	Sub code			
001	10-1		Communication error	E0	00
002	10-2				01
003	—		—		02
004	18-1		Paper feed tray error		03
005	18-2				04
006	18-3				05
007	18-4				06
008	26-1		L detection error		07
009	28-1		High voltage power error		08
010	28-2				09
011	28-3				0A
012	34-1		High fixing temperature abnormality		0B
013	34-2				0C
014	35-1		Low fixing temperature abnormality		0D
015	35-2				0E
016	35-3				0F
017	35-4				10
018	35-5				11
019	35-6		Low fixing temperature abnormality	E0	12
020	35-7				13
021	35-8				14
022	35-9				15
023	35-10				16
024	36-1		Fixing sensor error		17
025	36-2				18
026	36-3				19
③ 027	—				1A
028	40-1		Scanning system error		1B
029	40-9				1C
030	41-1				1D
031	46-1		Image processing system error		1E
032	46-8				1F
033	46-10				20
034	46-11				21
035	—		—		22
036	49-4		Image processing system error		23
037	49-6				24
038	51-4		Motor speed error		25
039	51-5				26
040	51-6				27
041	52-1		Fan lock error		28
042	52-2				29

No.	Error code (decimal number)		Classification	KRDS	
	Main code	Sub code			
043	E56-1		Image control communication error	E1	00
044	E56-2				01
045	E56-3				02
046	E56-4				03
047	E56-5				04
048	E56-6		Operation control section system error		05
049	E56-7				06
050	E56-8				07
051	E56-9				08
052	E56-10				09
053	—		—	E0	2A
054	60-1		RADF error		2B
055	60-9				2C
056	60-11				2D
057	67-3				2E
058	70-1		Finisher error		2F
059	70-9				30
060	70-11				31
061	77-2				32
062	77-3				33
063	77-5		Finisher error	E0	34
064	77-6				35
065	77-11				36
066	77-16				37
067	80-1		Parameter memory board abnormality		38
068	80-2				39
069	80-3				3A
070	80-4				3B
071	80-5				3C
072	81-1		Flash ROM error		3D
073	81-2				3E
074	81-3				3F
075	E88-1		Image processing system error	E1	0A
076	E89-1		System control board communication error		0B
077	E89-2				0C
078	E89-3				0D
079	E89-4				0E
080	E89-5				0F
081	E89-6				10
082	E87-1		Print controller error		11
083	52-5		Fan lock error	E0	40
③ 084	86-2		Fax board error		41
③ 085	86-3				42

No.	Error code (decimal number)		Classification	KRDS	
	Main code	Sub code			
086	E86-04		Fax board error	E1	12
③ 087	E86-06		Fax error (System control board side)	E0	43
088	E86-88			E1	13
089	E86-89				14
090	—		—		15
091	E86-91		Fax error (System control board side)		16
092	—		—		17
093	E86-20		Fax error (Fax board side)		18
094	22-1		Machine internal temperature	E0	44
095	23-1		Drum periphery		45
096	26-2		L detection		46
097	26-3				47
098	28-4		—		48
099	43-1		Scanning system error		49
100	52-3		Fan lock error		4A
101	36-4		Broken fixing sensor		4B
102	52-6		Fan lock error		4C
103	87-2		Print controller error		4D
104	87-3		Print controller error	E0	4E
105	—		—		4F
106	52-4		Fan lock error		50
107	86-7		Fax board error		51
108	86-8				52
109	18-5		Paper feed tray error		53
110	26-4		High voltage power error		54
111	51-2		Motor speed error		55
112	52-7		Fan lock error		56
113	52-8				57
114	E56-12		System control board communication error	E1	19
115	E56-13				1A
116	77-1		Finisher error	E0	58
117	77-4				59
118	77-12				5A
119	77-17				5B
120	77-54				5C
121	77-55				5D

No.	Error code (decimal number)		Classification	KRDS	
	Main code	Sub code			
122	85-1		Network system abnormality	E0	5E
123	85-2				5F
124	85-3				60
125	E85-11			E1	1B
126	E85-12				1C
127	E85-13				1D
128	E85-14				1E
129	E85-15				1F
130	E85-16				20
131	E85-17				21
132	E85-18				22
133	E85-20				23
134	E85-21				24
135	E85-22				25
136	E85-23				26
137	52-9		Fan lock error	E0	61
138	81-4		Flash ROM error		62
139	82-1		Document manager error		63
140	82-2				64
141	E82-10			E1	27
③ 142	E89-80		CPU hang up-1		28
③ 143	E89-81		CPU hang up-2		29
③ 144	82-3		I-FAX system error	E0	65
145	E82-50			E1	2A
146	E82-51				2B
147	E82-52				2C
③ 148	77-13		Finisher error	E0	66
149	77-14				67
150	77-22				68
151	77-23				69
152	77-24				6A
153	77-25				6B
154	77-26				6C
155	77-27				6D
156	77-28				6E
157	77-29				6F
③ 158	E85-24		Network system abnormality	E1	2D
159	E85-25				2E
③ 160	52-10		Fan lock error	E0	70
③ 161	E85-30		Network system abnormality	E1	2F

Maximum count number : 9,999

D. Starting periodic date collection

Reset the periodic data from the setting periodic collection start date. Make a date that this operation is performed as a new periodic collection start date.

△3 The periodic data can be checked with the KRDS/RDmode (7145) and management list.

(1) Procedure

1. Enter the 25 mode.

2. "25 mode menu screen"
Press the [3. Collecting data] key.

3. "Data collection menu screen"
Press the [2. Starting periodic data collection] key.

4. "Starting periodic data collection screen"
Press the [YES] key to start the periodic data collection.
Press the [NO] or [RETURN] key, then data collection start date is not reset and returns to the data colleciton menu screen.

7.5 Copy Count for Each Part to be Replaced

Perform the copy count display, count clear, limit value setting and arbitrarily parts to be replaced setting to the data of the parts to be replaced (fixed/arbitrarily).

△3 Each count value can be check with the management list of 36 Mode and the KRDS/RDmode (7145). The following are included in the part counter menu:

- Copy Count for each fixed replacement part
- Copy Count for each arbitrarily replacement part

7.5.1 Copy count by parts to be replaced (fixed)

Set the parts name of the fixed parts to be replaced (fixed), parts No. and copy count display, and count reset.

A. Procedure

1. Enter the 25 Mode.

2. "25 mode menu screen"
Press the [4. Parts counter] key.

3. "Parts counter menu screen"
Press the [1. Count of parts (Fixed)] key.

4. "Copy count screen by parts to be replaced (fixed)"
Press the arrow keys to select the data.

5. Press the [Count reset] key.

6. "Count reset screen by parts to be replaced (fixed)"
Press the [YES] key to clear the copy count.
Press the [NO] or [RETURN] key, then the copy count is not reset and returns to the copy count screen by parts to be replaced.

B. List of parts to be replaced (fixed)

No.	Unit	Parts name	KRDS (Z1)
01	DC (including charging corona unit)	Drum	00
02		Cleaning blade assembly	01
03		Drum unit	02
04	Transfer/ separation corona	Transfer/separation corona unit	03
05	Developing unit	Developer	04
06		Developing unit	05
07	Main body	Ozone filter	06
⚠3 41		Suction filter/A	27
⚠3 42		Filter cover assembly	28
08	Main body paper feed unit	(Tray 1) Paper feed rubber	07
09		(Tray 1) Feed ubber	08
10		(Tray 1) Double feed prevention rubber	09
11		(Tray 2) Paper feed rubber	0A
12		(Tray 2) Feed ubber	0B
13		(Tray 2) Double feed prevention rubber	0C
14	DB-211/411	(Tray 3) Paper feed rubber	0D
15		(Tray 3) Feed ubber	0E
16		(Tray 3) Double feed prevention rubber	0F
17	DB-211	(Tray 4) Paper feed rubber	10
18		(Tray 4) Feed ubber	11
19		(Tray 4) Double feed prevention rubber	12
20	By-pass feed unit	Double feed prevention roller	13
21		Paper feed roller	14
22		Feed roller	15

No.	Unit	Parts name	KRDS (Z1)
23	Fixing unit	Fixing heat roller	16
24		Fixing pressure roller	17
⚠3 25		Fixing cleaner assembly	18
26		Heat insulating sleeve/A	19
27		Heat insulating sleeve/B	1A
⚠3 28		Fixing idler gear/B	2
29		—	1C
30		Fixing claw	1D
31		Fixing roller holder/U	1E
32		Fixing roller holder/L	1F
33		Fixing sensor	20
34		Fuse mounting plate assembly	21
35		Fixing heater lamp/1	22
36		Fixing heater lamp/2	23
⚠3 37	DF-318/320	Paper feed roller	24
38		Feed roller	2C
39		Double feed prevention roller	25
⚠3 40	FS-112	Paper exit roller/A	26
⚠3 43	LT-203	Paper feed rubber	29
44		Feed rubber	2A
45		Double feed prevention rubber	2B

7.5.2 Copy count by parts to be replaced (Named; arbitrarily)

Set the limit value for the parts to be replaced, parts No., parts name setting, copy count display and count reset.

A. Copy count display and count reset by parts to be replaced

(1) Procedure

1. Enter the 25 Mode.

2. "25 mode menu screen"
Press the [4. Parts counter] key.

3. "Parts counter menu screen"
Press the [2. Count of parts (Named)] key.

4. "Copy count screen by parts to be replaced (named)"
Press the arrow key to select the data to be set or changed.

5. The following items can be set below:

- "COUNT RESET" : To clear the copy count.
- "LIMIT SET" : To enter the limit value (6-digit).
- "P/N SET" : To enter the parts number (9-digit).
- "Parts name" : To enter the parts name.

6. Press the [RETURN] key, then return to the "Copy screen by parts to be replaced".

B. List of parts to be replaced (arbitrarily)

No.	Count timing	KRDS (G0)
00	When copy count (at the paper exit is completed)	00
01	When copy count (at the paper exit is completed)	01
02	When copy count (at the paper exit is completed)	02
03	When copy count (at the paper exit is completed)	03
04	When copy count (at the paper exit is completed)	04
05	When copy count (at the paper exit is completed)	05
06	When copy count (at the paper exit is completed)	06
07	When copy count (at the paper exit is completed)	07
08	When copy count (at the paper exit is completed)	08
09	When copy count (at the paper exit is completed)	09
10	When copy count (at the paper exit is completed)	0A
11	When copy count (at the paper exit is completed)	0B
12	When copy count (at the paper exit is completed)	0C
13	When copy count (at the paper exit is completed)	0D
14	When copy count (at the paper exit is completed)	0E
15	When copy count (at the paper exit is completed)	0F
16	When copy count (at the paper exit is completed)	10
17	When copy count (at the paper exit is completed)	11
18	When copy count (at the paper exit is completed)	12
19	When paper is fed from LT-203	13
20	When paper is fed from by-pass tray	14
21	When paper is fed from tray 1	15
22	When paper is fed from tray 2	16
23	When paper is fed from tray 3	17
24	When paper is fed from tray 4	18
25	When paper is fed from ADU	19
26	When paper is exited from main body	1A
27	When RADF is read (1 count each for front and back)	1B
28	When RADF is read (1 count each for front and back)	1C
29	When RADF is read (1 count each for front and back)	1D

C. Count resetting method

(1) Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [4. Parts counter] key.
3. "Parts counter menu screen"
   Press the [2. Count of parts (Named)] key.
4. "Copy count screen by parts to be replaced (named)"
   Press the arrow keys to select the data.
5. Press the [COUNT RESET] key.
6. "Count reset screen by parts to be replaced (named)"
   Press the [YES] key to clear the copy count that has been selected.
   Press the [NO] or [RETURN] key, then the copy count is not reset and returns to the "Copy count screen by parts to be replaced (named)".

D. Count limit setting method

Enter the new limit value from the numeric keys on the screen.

(1) Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [4. Parts counter] key.
3. "Parts counter menu screen"
   Press the [2. Count of parts (Named)] key.
4. "Copy count screen by parts to be replaced (named)"
   Press the arrow key to select the data to be set or changed.
5. Press the [LIMIT SET] key.
6. "Copy count limit setting screen by parts to be replaced (named)"
   Enter new value using the numeric keys.
7. Press the [SET] key to enter the limit value that has been entered.
8. Press the [RETURN] key to return to the copy count screen by parts to be replaced (named).

Note:

- When pressing the [RETURN] key without pressing the [SET] key, the setting is complete without changing a new limit value and returns to the copy count screen by parts to be replaced (Named).

Reference:

- The right side of the limit value will be marked "*" if the copy count exceeds its limit value.

E. Parts No. setting

Enter the new parts No. (9-digit) from the numeric keys and alphabet keys on the screen.

(1) Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [4. Parts counter] key.
3. "Parts counter menu screen"
   Press the [2. Count of parts (Named)] key.
4. "Copy count screen by parts to be replaced (named)"
   Press the arrow key to select the data to be set or changed.
5. Press the [P/N SET] key.
6. "Part No. setting screen by parts to be replaced (named)"
   Enter new parts No. using the numeric and alphabet keys.
7. Press the [SET] key to enter the limit value that has been entered.
8. Press the [RETURN] key to return to the copy count screen by parts to be replaced (named).

Note:

- When pressing the [RETURN] key without pressing the [SET] key, the setting is complete without changing a new parts No. and returns to the copy count screen by parts to be replaced (Named).

F. Parts name setting

Enter the new parts name from the keys on the screen.

There are three screen in the input screen and are changed with the arrow key:

- Alphabet (a capital letter), numeric number
- Alphabet (a small letter), numeric number
- Symbol, numeric number

The key arrangement can be changed by pressing the [Keyboard] key in the alphanumeric (uppercase letter/lowercase letter), symbol and data input screen.

(1) Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [4. Parts counter] key.
3. "Parts counter menu screen"
   Press the [2. Count of parts (Named)] key.
4. "Copy count screen by parts to be replaced (named)"
   Press the arrow key to select the data to be set or changed.
5. Press the [P/N SET] key.
6. "Parts name setting screen by parts to be replaced (named)" △3
   Enter new parts name using the keys on the screen.
7. Press the [OK] key to enter the parts name that has been entered and return to the copy count screen by parts to be replaced (Named).

Note:

- When pressing the [CANCEL] key without pressing the [OK] key, the setting is completed without setting a parts name and returns to the copy count screen by parts to be replaced (Named).

7.6 Password Setting

The following passwords are set.

- Key operator password (8-digits): Password to enter key operator mode when security enhancement is enabled.
- User account (EKC) master key code (8 digits): An EKC master key code that is required when entering various EKC setting modes.
- Weekly timer password (4 digits): A weekly timer password that is required when entering various weekly timer setting modes.
- CE password (8-digits): Password for CE to access service modes when security enhancement is enabled.

A. Procedure

1. Enter the 25 Mode.
2. Press the [5. Password setting] key.
3. "Password setting menu screen"
   Press the key of an item that you want to set.
   - [Key Operator Password (8 digits)]
   - [User account (EKC) master key code (8 digits)]
   - [Weekly timer Password (4 digits)]
   - [CE Password (8 digits)] △3
4. Input a new password through the numeric keys and press the [SET] key to update the password.
   When the following keys are set for the password, each mode can be used without a password. △3
   - "0000" : Weekly timer Password
   - "00000000": User account (EKC) master key code
5. Repeat the procedures 3 and 4 to set passwords for other items.
6. Press the [RETURN] key to return to the password setting menu screen.

Note:

- When pressing the [RETURN] key without pressing the [SET] key, the setting is complete. However the new password will not be entered and the password setting menu screen will return.
- Do not use name, your birthday or employee code number as the password since other people can easily guess them.

• The administrator should not inform other people of the password.

7.7 Setting Phone Number of the Service Center

This function displays the telephone and fax numbers (Max. 21 digits) of the service center which is indicated on the screen if a service call is required.
△3 This function is not related to KRDS/RDmode (7145) functions. It is designed only for indicating the data on the screen.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [6. Service TEL No.] key.
3. "Service center number setting screen"
   Press either of the [TEL] or [FAX] key which you want to set.
4. Input the telephone number or fax number through the numeric keys and press the [SET] key to update the telephone number or fax number.
5. When setting both the telephone number and the fax number, repeat the procedures 3 and 4 above.
6. Press the [RETURN] key to return to the "25 mode menu screen".

Note:

• When pressing the [RETURN] key without pressing the [SET] key, the setting is complete. However the new phone number will not be entered and the "25 mode menu screen" will return.

7.8 Setting the Serial Number/ the Destination

7.8.1 Setting the serial number

This function is used to display, set and change the serial number of the main body and optional units.
△3 The serial numbers can be read from KRDS/ RDmode (7145).

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [7. Serial number] key.
3. "Serial number setting menu screen"
   From among the keys, press the key of an item you want to change.
4. "Serial number setting screen"
   Enter the 9-digit serial number from the alphabet and numeric keys on the screen and then press the [SET] key to enter the number that has been entered.

Reference:

• Characters input are entered at the least significant digit and displayed while shifting from right to left.

5. Repeat the procedures 3 and 4 to set the serial numbers of other items.
6. Press the [RETURN] key to return to the "Serial number setting menu screen".

Note:

• When pressing the [RETURN] key without pressing the [SET] key, the setting is complete. However the new serial number will not be entered and the "Serial number setting menu screen" will return.

7.8.2 Setting the destination

To change the destination setting, press the [Destination] key on the serial number setup menu. The procedure is as follows.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [7. Serial No.] key.
3. "Serial number setting screen"
   Press the [Destination] key.
4. "Destination setting screen"
   Use the arrow key to select the destination.
5. Press the [OK] key to register the setting.

Note:

- If you press [CANCEL] key, the copier will retain the previous destination setting and return you to the "Serial number setting screen".

6. Press the [RETURN] key to return to the "25 mode menu screen".

Destination codes

Code	Destination	Code	Destination
JP	Japan	IE	Ireland
CA	Canada	FI	Finland
US	U.S.A	SE	Sweden
KR	Korea	NO	Norway
SG	Singapore	AT	Austria
MY	Malaysia	BE	Belgium
CN	China	NL	Netherlands
SA	Saudi Arabia	CH	Switzerland
TW	Taiwan	FR	France
ZA	South Africa	GB	Great Britain
PL	Poland	DE	German
PT	Portugal	EU	Europe
ES	Spain	NZ	New Zealand
IT	Italy	AU	Australia
DK	Denmark		

7.9 Displaying the ROM Version

Display ROM version mounted to the machine.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [ROM version] key.
3. "ROM version display screen"

- System control
- Image control
- Panel control
- Optical control
- Various options
  If any option is not installed, its relevant position remains blank.

4. Press the [RETURN] key to return to the "25 mode menu screen".

7.10 KRDS Setting

See the "Manual for KRDS".

7.11 ISW Setting

See the chapter "ISW".

7.12 Root Counter Display

The root counter (total counter can be checked in 25 mode on the root counter display.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [11. Root counter] key.
3. "Root counter display screen"
   Values of the root counter (total counter) are displayed.
4. Press the [RETURN] key to return to the "25 mode screen".

7.13 Setting Date

Set the total count start day.

A. Procedure

1. Enter the 25 Mode.
2. "25 mode menu screen"
   Press the [12.Setting date] key.
3. "Setting date screen"
   Using the numeric keys, enter the year, month and day in that sequence.
4. Press the [OK] key to return to the "25 mode screen".

Note:

- Ends when the [CANCEL] key is pressed without amending the entered date, and returns to the "25 mode menu screen".

7.14 Tray Size Setting

This setting is made when changing the paper size of the option tray (LT-203). The paper size that can be selected is only A4 and 8.5 x 11.

A. Procedure

1. Enter the 25 mode.
2. "25 mode menu screen"
   Press the [13. Tray size setting] key.
3. "Tray size setting screen"
   Press the arrow key to change the paper size of the LT-203.
4. Press the [RETURN] key to return to the "25 mode menu screen".

8. 36 MODE

8.1 Setting Method

A special operating mode called “36 Mode” has been provided with this machine. This mode enables adjustment of the various parts.

A. Procedure

1. Turn the SW2 (sub power switch) OFF when the SW1 (main power switch) remains ON.
2. Turn the SW2 ON while pressing 3 and 6 of the copy quantity setting buttons.
   If security enhancement is enabled, the CE password input request screen appears. In put CE password.
   36 mode menu screen appears. At this moment, the machine turns to 36 mode and normal copy operation is disabled.
3. Press the desired item key on the LCD screen. Each setting screen will appear.
4. Enter data in each setting screen.
5. Press the [RETURN] key to check the data that has been entered.
6. Turn the SW2 OFF to cancel the 36 mode.
7. New data will be effective after restarting.

Note:

- If FNS is not installed, the [FNS adj.] key is netted and neither key can be selected.

8.2 Process Adjustment

Adjust the L detection, various high voltages, developer toner density, dot diameter, and the laser offset.

A. Procedure

1. Select [1. Process adjustment] in the 36 mode menu screen and display the “Process adjustment menu screen”.
2. The following items are shown on the “Process adjustment menu screen”.

- Charging voltage value adjustment
- Transfer current adjustment
- Separation (AC) voltage adjustment
- Separation (DC) voltage value adjustment
- Charging grid voltage adjustment
- Developing bias adjustment
- L detection adjustment
- Automatic toner supply
- Toner density adjustment
- Dot diameter adjustment
- LD1 offset adjustment
- △3 LD2 offset adjustment (7145 only)
- LD1 bias adjustment
- △3 LD2 bias adjustment (7145 only)

3. Press the arrow key until the item you want to adjust appears. The adjustment screen of the selected item is displayed.
4. Press the [Preceding screen] of each process adjustment screen to return to “Process adjustment menu screen”.

(1) Process adjustment—Charging voltage value adjustment

- Charging voltage value adjustment is inhibited in the field.

(2) Process adjustment—Transfer current adjustment

- Transfer current adjustment is inhibited in the field.

(3) Process adjustment—Separation (AC) voltage adjustment

- Separation (AC) voltage adjustment is inhibited in the field.

(4) Process adjustment—Separation (DC) voltage value adjustment

- Separation (DC) voltage value adjustment is inhibited in the field.

(5) Process adjustment—Charging grid voltage adjustment

- Charging grid voltage adjustment is inhibited in the field.

(6) Process adjustment—Developing bias adjustment

- Developing bias adjustment is inhibited in the field.

(7) Process adjustment—L detection adjustment

- See “L detection adjustment”.

(8) Process adjustment—Automatic toner supply

- Normally carried out automatically, and the process adjustment - automatic toner supply is not made in the field.

(9) Process adjustment—Toner density adjustment
- See “Toner density adjustment”.

(10) Process adjustment—Dot diameter adjustment
- See “Dot diameter adjustment”.

(11) Process adjustment—LD1 offset adjustment
- See “LD1 offset adjustment”.

△3 (12) Process adjustment—LD2 offset adjustment (7145 only)
- See “LD2 offset adjustment”.

(13) Process adjustment—LD1 bias adjustment
- The LD1 bias adjustment is not made in the field.

△3 (14) Process adjustment—LD2 bias adjustment (7145 only)
- The LD2 bias adjustment is not made in the field.

8.3 L Detection Adjustment

This adjustment be made immediately after replacement of the developer (before any copies are made with the new developer). Developing counter is automatically reset.

Note:
- After replacing the developer, do not make copies until you have performed L detection adjustment.

A. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [1. Process adjustment] key.
3. “Process adjustment screen”
   Press the arrow key until the “L detection adjustment value”. appears in the message display area.
4. “L detection adjustment screen”
   Press the [START] key, then confirm that [OK] is displayed at “Result” and the L detection data value.
5. Press the [RETURN] key to return to the “36 mode menu screen”.

Note:
- If an OK indication does not appear after the developer has been agitated, it means that an L detection adjustment error has occurred. In this case, an error code will appear in the “Result” display area. For the meaning of error codes, refer to the “L detection error code list” of “List of error codes”.

8.4 Toner Density Adjustment

The developer toner density can be increased or decreased by making this adjustment.
Major cases in which this adjustment is used:
- When the image fogging has occurred due to the increased density in the developer toner density. (In this case, reduce the toner density.)
  Preparation: The drum cartridge must be set in advance.

A. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [1. Process adjustment] key.
3. Press the arrow key repeatedly until the “Toner density adjustment” is displayed in the message column.
4. “Toner density adjustment screen”
   Select the set value [-2] to [+2], and press the [START] key.

- Set value: -2 (toner density decreased) to +2 (toner density increased)
- When [Current set value] → [New set value] = the same, return the toner density to the normal level.
- When [Current set value] → [New set value] = + (plus), increase the transient level of the toner density.
- When [Current set value] → [New set value] = - (minus), decrease the transient level of the toner density.
  According to the value set, the toner density is automatically adjusted. When the adjustment is terminated in about 250 seconds.

5. Press the [RETURN] key to return to the “36 mode menu screen”.

Note:
- When an error code is displayed while in the toner density adjustment, conduct the toner density adjustment again after checking the expected defective parts on the error code list.
  F26-3: TDS (Toner density sensor output abnormality)

8.5 Dot Diameter Adjustment

The MPC value can be corrected to change the image density (dot diameter) by entering a setting. (Common to copier/printer/fax)

Major cases in which this adjustment is used:

- When you want to change the image density.
- When changing the write unit or TCSB (toner control sensor board), or when cleaning the dust-proof glass.

Preparation: The drum cartridge must be set in advance.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [1. Process adjustment] key.
3. Press the arrow key repeatedly until the "Dot diameter adjustment" is displayed in the message column. *3
4. "Dot diameter adjustment screen"
   Select the set value [-3] to [+3], and press the [START] key.
   According to the value set, the dot diameter is automatically adjusted.
   - Set value: -3 (toward the lighter) to +3 (toward the darker)
5. Press the [RETURN] key to return to the "36 mode menu screen".

Note:

- When the adjustment is made toward the darker, the dot diameter becomes thick and the toner consumption is increased.

8.6 LD1 Offset Adjustment

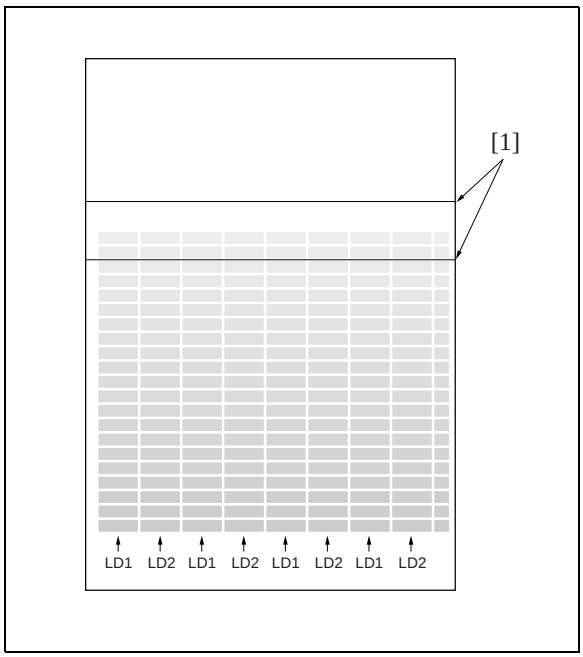
The write position of the LD1 laser is adjusted.

This adjustment must be made when replacing the write unit, drum and/or the developer.

Preparation: The drum cartridge must be set in advance. The developing unit must be filled with developer. The L detection adjustment, toner density adjustment and the dot diameter adjustment must be completed.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [1. Process adjustment] key.
3. Press the arrow key repeatedly until the "LD1 offset adjustment" is displayed in the message column.
4. "LD1 offset adjustment screen"
   Press the [COPY] key.
5. Select A3 or 11 x 17 size paper, then press the START button to print the test pattern.
6. Check the test pattern.
   Specification: Check to see if the LD1 laser output patterns are uniform as shown in the drawing below and the starting points of the low density section are matched between the reference lines.
   Since a single beam is employed for 7235/7228/7222, the pattern shown as LD2 in the illustration below is also output by LD1.



[1] Reference line

7. If it is not within specification, press the # button while holding down the ∗ button.
8. "LD1 offset adjustment screen"
   Input the offset value through the numeric keys and press the [SET] key.
   - Setting range: -128 ~ +127

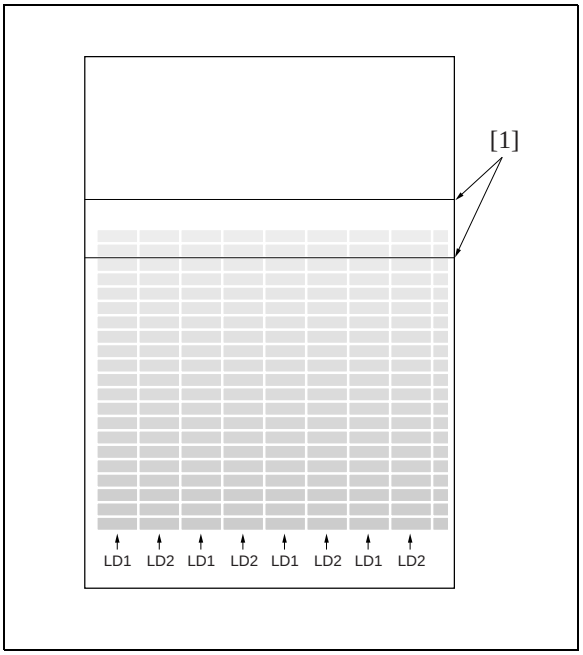
9. Repeat the procedures 4 to 7 until the specified value is attained.
10. Press the [RETURN] key to return to the “36 mode menu screen”.

⚠3 8.7 LD2 Offset Adjustment (7145 only)

The write position of the LD2 laser is adjusted.
This adjustment must be made when replacing the write unit, drum and the developer.
Preparation: The drum cartridge must be set in advance. The developing unit must be filled with developer. The L detection adjustment, toner density adjustment, dot diameter adjustment and the LD1 offset adjustment must be completed.

A. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [1. Process adjustment] key.
3. Press the [Next item] key repeatedly until the “LD2 offset adjustment” is displayed in the message column.
4. “LD2 offset adjustment screen”
   Press the [COPY] key.
5. Select A3 or 11 x 17 size paper, then press the START button to print the test pattern.
6. Check the test patterns.
   Specification: Check to see if the LD2 laser output patterns are uniform as shown in the drawing below and the starting points of the low density section are matched between the reference lines.



[1] Reference line

7. If it is not within specification, press the # button while holding down the ∗ button.
8. “LD2 offset adjustment screen”
   Enter the offset value through the numeric keys and press the [SET] key.
   • Setting range: -128 ~ +127
9. Repeat the procedures 4 to 7 until the specified value is attained.
10. Press the [RETURN] key to return to the “36 mode menu screen”.

8.8 Timing Adjustment

This function adjusts each timing. When timing adjustment is performed, use A3 or 11 x 17 size paper.

A. Procedure

1. Select [2. Timing adj.] in the "36 mode menu screen".
The "Timing adjustment menu screen" will appear.

- The following items are included in the timing adjustment.
"1 Vertical/horizontal magnification adjustment"
"2 Restart timing adjustment"
"3 Paper feed loop amount adjustment"
"4 Leading edge original erasure amount adjustment"
"5 Centering adjustment"
"6 Image read point adjustment"
"7 Restoring standard data"

2. Press the item key to be adjusted. The selected setting screen will appear.

3. Press the [RETURN] key in each of the timing adjustment screens to return to the "Timing adjustment menu screen".

8.8.1 Vertical/Horizontal magnification adjustment

The vertical and horizontal magnifications of the printer system and the copy system are adjusted.

A. Procedure

1. Select [2. Timing adj.] in the "36 mode menu screen".
The "Timing adjustment menu screen" will appear.

2. Select the [1. Drum clock adj.] on the "Timing adjustment menu screen".
The "Drum clock adjustment (vertical/horizontal magnification adjustment)" will appear.

3. This adjustment has the following items. These can be selected by pressing the arrow key:

- Vertical magnification adjustment : Printer
- Vertical magnification adjustment : Printer 2
- Vertical magnification adjustment : Platen
- Horizontal magnification adjustment : Platen
- Vertical magnification adjustment : RADF (single side, 50%)
- Vertical magnification adjustment : RADF (single side, 100%)
- Vertical magnification adjustment : RADF (single side, 200%)
- Vertical magnification adjustment : RADF (single side, 400%)
- Vertical magnification adjustment : RADF (double side, 50%)
- Vertical magnification adjustment : RADF (double side, 100%)
- Vertical magnification adjustment : RADF (double side, 200%)
- Vertical magnification adjustment : RADF (double side, 400%)

4. Enter data from the numeric keys on the screen, then press the [SET] key to enter the data that have been entered.

5. Press the [COPY] key to return to the basic screen, then make a test copy.

6. Press the # button while pressing the ∗ button to return to the Vertical/Horizontal magnification adjustment screen.

7. Press the [RETURN] key in the "Vertical and horizontal magnification adjustment screen" to return to the "Timing adjustment menu screen".

(1) Printer vertical magnification adjustment

With the amount of the paper feed loop adjusted properly between the registration roller and the fixing roller, the transfer slippage in the position about 20mm from the trailing edge of the transfer paper is prevented.

a. Procedure

1. Enter the 36 mode.

2. "36 mode menu screen"
Press the [2. Timing adj.] key.

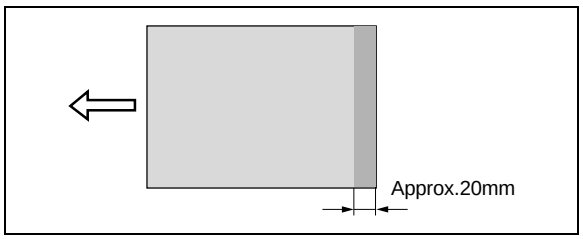
3. "Timing adjustment menu screen"
Press the [1. Drum clock adj.] key.

4. "Timing adjustment screen"
Press the arrow key until "Vertical magnification-printer" appears in the message display area.

5. "Vertical/horizontal magnification (drum clock) adjustment screen"
Press the [COPY] key.

6. "Basic screen"
Set the copy size to A3 or 11 x 17, and the copy quantity to 5, then press the START button and output an test pattern (No. 9).

7. Output five sheets of paper, and check for transfer jitter.



Check the transfer jitter at a point approx. 20mm from the trailing edge of the paper.

8. If it is not within specification, press the # button while holding down the ∗ button.

9. "Vertical/horizontal magnification (drum clock) adjustment screen"
Enter a value through the numeric keys (the change of a value should be made in two steps) and press the [SET] key.

- Setting range: -50 (reduction) ~ +50 (enlargement)

△3 1 step = 0.1%

10. Repeat steps 5 to 9 until the transfer jitter in all five output sheets disappears.

11. Once you have confirmed that there is no transfer jitter, press the arrow key, then select "Printer 2" to adjust the vertical magnification of "Printer 2".

(2) Printer 2 vertical magnification adjustment
Adjust the vertical magnification of the printer system.

Note:
- Ensure that the printer's vertical magnification is adjusted before going ahead with this adjustment

a. Procedure

1. Enter the 36 mode.

2. "36 mode menu screen"
Press the [2. Timing adj.] key.

3. "Timing adjustment menu screen"
Press the [1. Drum clock adj.] key.

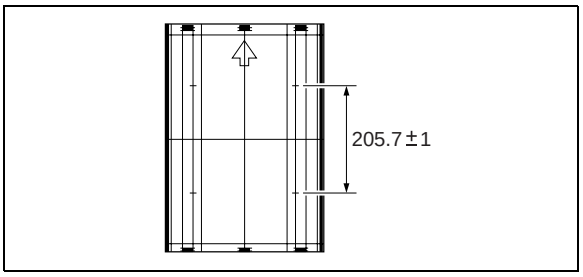
4. "Vertical/horizontal magnification (drum clock) adjustment screen"
Press the arrow key until "Vertical magnification-printer 2" appears in the message display area.

5. Press the [COPY] key.

6. "Basic screen"
Select A3 or 11 x 17 size paper, then press the START button to print the test pattern.

7. Use a ruler to measure the vertical magnification.

- Standard value: 0.5% max (life size)
  Within ± 1mm with respect to 205.7mm



8. If it is not within specification, press the # button while holding down the ∗ button.

9. "Vertical/horizontal magnification (drum clock) adjustment screen"
Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -50 (reduction) ~ +50 (enlargement)

△3 1 step = 0.1%

10. Repeat the procedures 5 to 9 until the specified value is attained.

11. Press the [RETURN] key to return to the "Timing adjustment menu screen".

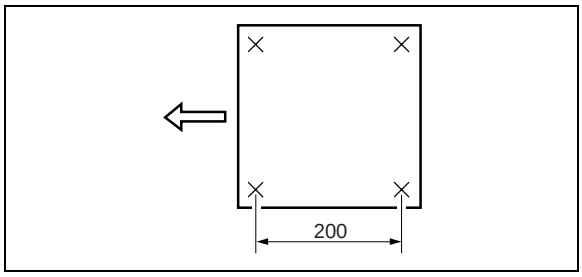
(3) Platen vertical magnification adjustment

Adjust the vertical magnification of the scanner system.

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
Press the [1. Drum clock adj.] key.
4. "Vertical/horizontal magnification (drum clock) adjustment screen"
Press the arrow key until "Vertical magnification-platen" appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
Set the new test chart on the original glass and select A3 or 11 x 17 size paper. Then press the START button.
7. Use a ruler to measure the vertical magnification.

- Standard value: ± 0.5% max (life size)
  Within ± 1mm with respect to 200mm



8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Vertical/horizontal magnification (drum clock) adjustment screen"
Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -20 (reduction) ~ +20 (enlargement)
  1 step = 0.05%

10. Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11. Press the [RETURN] key to return to the "Timing adjustment menu screen".

(4) Platen horizontal magnification adjustment

Adjust the horizontal magnification of the copy system.

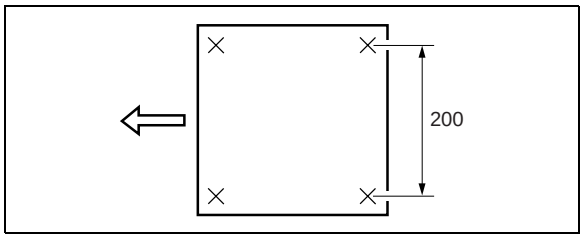
Note:

- The result of the platen horizontal magnification will be reflected all the images read by scanner (RADF, platen).

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
Press the [1. Drum clock adj.] key.
4. "Vertical/horizontal magnification (drum clock) adjustment screen"
Press the arrow key until "Horizontal magnification-platen" appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
Set the new test chart on the original glass and select A3 or 11 x 17 size paper. Then press the START button.
7. Use a ruler to measure the horizontal magnification.

- Standard value: ± 0.5% max (life size)
  Within ± 1mm with respect to 200mm



8. Press the # button while pressing the ∗ button to return to the "Vertical/horizontal magnification (drum clock) adjustment screen".
9. "Vertical/horizontal magnification (drum clock) adjustment screen"
Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -10 (reduction) ~ +10 (enlargement)
  1 step = 0.1%

10. Repeat steps 5 to 9 until the horizontal magnification becomes the standard value.

11. Press the [RETURN] key to return to the “Timing adjustment menu screen”.

(5) RADF vertical magnification adjustment

Adjust the vertical magnification while in RADF copying.

a. Procedure

1. Enter the 36 mode.

2. “36 mode menu screen”
Press the [Timing adj.] key.

3. “Timing adjustment menu screen”
Press the [1. Drum clock adj.] key.

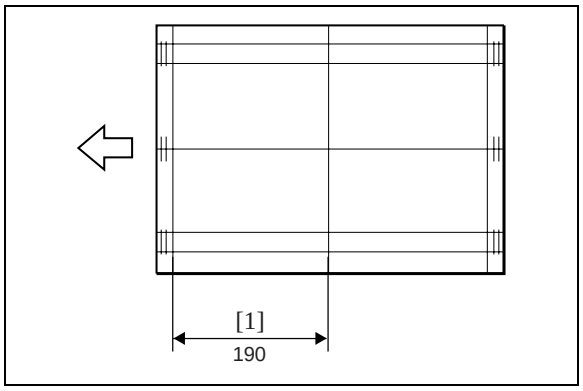
4. “Vertical/Horizontal magnification (drum clock) adjustment screen”
Press the arrow key to select the magnification you want to adjust.
The screen changes in the following order: Single sided 50% → 100% → 200% → 400% → Double sided 50% → 100% → 200% → 400%.

5. Press the [COPY] key.

6. Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the START button.

7. Use a ruler to measure the vertical magnification.

- Standard value: ± 0.5% max (life size)
  Within ± 1.0mm with respect to 190mm



[1] Vertical magnification

8. If it is not within specification, press the # button while holding down the ∗ button.

9. “Vertical/Horizontal magnification (drum clock) adjustment screen”
Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -20 (reduction) ~ +20 (enlargement)
  1 step = 0.1%

10. Repeat steps 5 to 9 until the vertical magnification becomes the standard value.

11. To adjust another adjustment item, press the arrow key to select the desired adjustment.

12. Press the [RETURN] key to return to the “Timing adjustment menu screen”.

8.8.2 Restart timing adjustment

To adjust the restart timing.

A. Procedure

1. Select the [2. Timing adj.] in the “36 mode menu screen”, then the “Timing adjustment menu screen” will appear.

2. Select the [2. Restart timing] on the “Timing adjustment menu screen”. then the “Restart timing adjustment screen” will appear.

3. Using the arrow key will allow you to select the following items.

- Restart timing adjustment : Engine (All)
- Restart timing adjustment : Engine (Main body upper tray)
- Restart timing adjustment : Engine (Main body lower tray)
- Restart timing adjustment : Engine (DB1)
- Restart timing adjustment : Engine (DB2)
- Restart timing adjustment : Engine (LCT)
- Restart timing adjustment : Engine (Bypass)
- Restart timing adjustment : Engine (ADU)
- Restart timing adjustment : RADF (single side)
- Restart timing adjustment : RADF (double side, front)
- Restart timing adjustment : RADF (double side, back)

4. Enter a desired value from the numeric keys on the screen, then press the [SET] key to validate your entry.

5. Turn on the Basic Screen by pressing the [COPY] key, then make a test copy from the basic screen.
6. Press the # button while pressing the ∗ button to return to the "Horizontal/Vertical magnification adjustment screen".
7. Press the [RETURN] key in the "Restart timing adjustment screen" to return to the "Timing adjustment menu screen".

(1) Engine restart timing adjustment

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [2. Restart timing] key.
4. "Restart timing adjustment screen"
   Press the arrow key until the desired adjustment item appears in the message display area.
5. Press the [COPY] key.

⚠1 6. "Basic screen"
   Select a maximum paper size for the tray you want to adjust and press START to output the test pattern.

7. Check the restart timing.
   - Standard value: ± 2.0mm max.
8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Restart timing adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -127 (slow) ~ +127 (fast)
     1 step = 0.1mm
10. Repeat steps 5 to 9 until the restart timing becomes the standard value.
11. To adjust another adjustment item, press the arrow key to select the desired adjustment.
12. Press the [RETURN] key to return to the "Timing adjustment menu screen".

(2) RADF restart timing adjustment

⚠1 **Reference:**

- The operation described here is the same as the adjustment in "36 mode menu screen" - [9. RADF adj.].

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [2. Restart timing] key.
4. "Restart timing adjustment screen"
   Press the arrow key until the desired RADF adjustment item appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
   Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the START button.
   - Adjustment the "RADF double side (second side)", then make a test copy in double side → single side mode and check the restart timing of 2nd output paper.
7. Check the restart timing.
   - Standard value: ± 3.0mm max. (life size)
8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Restart timing adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -50 (slow) ~ +50 (fast)
     1 step = 0.1mm
10. Repeat steps 5 to 9 until the restart timing becomes the standard value.
11. Press the [RETURN] key to return to the timing adjustment menu screen.

8.8.3 Paper feed loop amount adjustment

If a paper is skewed, adjust the amount of the loop for each tray.

A. Procedure

1. Select the [2. Timing adj.] in the “36 mode menu screen”, then the “Timing adjustment menu screen” will appear.
2. Select the [3. Paper loop adj.] on the “36 mode menu screen”, then the “Paper feed loop amount adjustment screen” will appear.
3. Using the arrow key will allow you to select the following items.
   - Paper feed loop adjustment : All
   - Paper feed loop adjustment : Main body upper tray
   - Paper feed loop adjustment : Main body lower tray (small size) B5 only
   - Paper feed loop adjustment : Main body lower tray (large size) Other than B5
   - Paper feed loop adjustment : DB upper tray (small size) Other than A3, B4, 11 x 17 and 8.5 x 14.
   - Paper feed loop adjustment : DB upper tray (large size) A3, B4, 11 x 17 and 8.5 x 14
   - Paper feed loop adjustment : DB lower tray (small size) Other than A3 and 11 x 17
   - Paper feed loop adjustment : DB lower tray (large size) A3 and 11 x 17
   - Paper feed loop adjustment : LCT
   - Paper feed loop adjustment : Bypass (normal paper)
   - Paper feed loop adjustment : Bypass (thick paper)
   - Paper feed loop adjustment : Bypass (post card)
   - △3 Paper feed loop adjustment : ADU (excepting 8.5 x 5.5)
   - △3 Paper feed loop adjustment : ADU (8.5 x 5.5)
   - Paper feed loop adjustment : RADF (single side)
4. Enter a desired value from the numeric keys on the screen, then press the [SET] key to validate your entry.
5. Turn on the Basic Screen by pressing the [COPY] key, then make a test copy from the basic screen.
6. Press the # button while pressing the ∗ button to return to the “Paper feed loop quantity adjustment screen”.
7. Press the [RETURN] key in the “Paper feed loop quantity adjustment screen” to return to the “Timing adjustment menu screen”.

(1) Paper feed loop adjustment for engine

a. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [2. Timing adj.] key.
3. “Timing adjustment menu screen”
   Press the [3. Paper loop adj.] key.
4. “Paper feed loop amount adjustment screen”
   Press the arrow key until the desired adjustment item appears in the message display area.
5. Press the [COPY] key.
6. “Basic screen”
   Select a tray and a paper size properly and press START to output the test pattern.
7. Check the skewing condition.
8. When the paper feed loop quantity is not appropriate, press the # button while pressing the ∗ button.
9. “Paper feed loop amount adjustment screen”
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -100 ~ +15
     1 step = 0.23mm
10. Repeat steps 5 to 9 until the paper feed loop amount becomes appropriate.
11. Press the [RETURN] key to return to the “Timing adjustment menu screen”.

(2) Paper feed loop adjustment for RADF

⚠ **Reference:**

- The operation described here is the same as the adjustment in “36 mode menu screen” - [9. RADF adj.].

a. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [2. Timing adj.] key.
3. “Timing adjustment menu screen”
   Press the [3. Paper loop adj.] key.
4. “Paper feed loop amount adjustment screen”
   Press the arrow key until “RADF” appears in the message display area.
5. Press the [COPY] key.
6. “Basic screen”
   Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the START button.
7. Check the condition of skewing in the output copy.
8. When the paper feed loop quantity is not appropriate, press the # button while pressing the ∗ button.
9. “Paper feed loop amount adjustment screen”
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -10 (small) ~ +10 (large)
     1 step = 0.5mm
10. Repeat steps 5 to 9 until the skewing condition is correct.
11. Press the [RETURN] key to return to the “Timing adjustment menu screen”.

8.8.4 Leading edge original erasure adjustment

Adjust the leading edge original erasure (leading edge blank cut) amount.

Note:

- If you reduce the erasure width, a black line may appear on the leading edge of the paper when you make an enlarged copy.

A. Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [2. Timing adj.] key.
3. “Timing adjustment menu screen”
   Press the [4. Lead edge timing] key.
4. “Leading edge original erasure adjustment screen”
   Press the [COPY] key.
5. ⚠ “Basic screen”
   Place the test chart on the platen glass. Select a maximum paper size for the tray you want to adjust and press START.
6. Measure the leading edge original erasure.
   - Standard value: Within 3.0mm
7. If it is not within specification, press the # button while holding down the ∗ button.
8. “Leading edge original erasure adjustment screen”
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -20 (small) ~ +20 (large)
     1 step = 0.1mm
9. Repeat steps 4 to 8 until the leading edge original erasure amount becomes the standard value.
10. Press the [RETURN] key to return to the “Timing adjustment menu screen”.

8.8.5 Centering adjustment

In the centering adjustment, the centering of the image is adjusted in the direction at a right angle to the feed direction.

A. Procedure

1. Select the [2. Timing adj.] in the "36 mode menu screen", then the "Timing adjustment menu screen" will appear.
2. Select the [5. Centring adj.] on the "Timing adjustment menu screen", then the centering adjustment screen will appear.
3. Using the arrow key will allow you to select the following items.

(1) Each of tray adjustments
- Centering adjustment : All
- Centering adjustment : Main body upper tray (common, small size, large size)
- Centering adjustment : Main body lower tray (common, small size, large size)
- Centering adjustment : DB upper tray (common, small size, large size)
- Centering adjustment : DB lower tray (common, small size, large size)
- Centering adjustment : LCT
- Centering adjustment : ADU (common, small size, large size)
- Centering adjustment : Bypass (common, small size, large size)

(2) Platen adjustment
- Centering adjustment : Platen

(3) RADF adjustment
- Centering adjustment : RADF (single side, double side front, double side back)

4. Enter a desired value from the numeric keys on the screen, then press the [SET] key to validate your entry.
5. Turn on the Basic Screen by pressing the [COPY] key, then make a test copy from the basic screen.
6. Press the # button while pressing the ∗ button to return to the centering adjustment screen.
7. Press the [Preceding screen] key in the "Centering adjustment screen" to return to the "Timing adjustment menu screen".

(1) Each tray centering adjustment

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [5. Centring adj.] key.
4. "Centering adjustment screen"
   Press the arrow key until the desired tray appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
   Select A3 or 11 x 17 size paper, then press the START button to print the test pattern.
7. Fold the output at the center in the paper feed direction, and check that the left and right lines overlap completely.
   - Standard value: Within ± 2mm
8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Centering adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -53 (inward direction of the center line) ~ +53 (rear direction of the center line)
     1 step = 0.09mm
10. Repeat steps 5 to 9 until the miscentering is within standard value.

Note:
- If it can not be adjusted within the specified range, see "Other Adjustments".

11. To adjust another adjustment item, press the arrow key to select the desired adjustment.
12. Press the [RETURN] key to return to the "Timing adjustment menu screen".

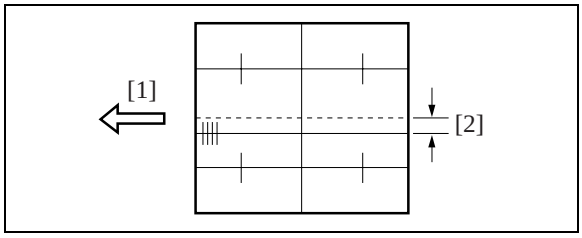
(2) ADU centering adjustment

⚠ **Note:**
- Be sure to perform the centering adjustment for each tray before starting this adjustment.

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [5. Centring adj.] key.
4. "Centering adjustment screen"
   Press the arrow key until "ADU" appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
   Select copy mode to single side → double side mode, then press the START button to print the test pattern.
7. Fold the output at the center in the paper feed direction, and check that the left and right lines overlap completely.

- Standard value: Back : Within ± 3mm
  Front and back : Within ± 3mm



[1] Lengthwise direction
[2] Miscentering amount between first side and second side

8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Centering adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -53 (inward direction of the center line) ~ +53 (rear direction of the center line)
  1 step = 0.09mm

10. Repeat steps 5 to 9 until the miscentering is within standard value.
11. To adjust another adjustment item, press the arrow key to select the desired adjustment.
12. Press the [RETURN] key to return to the "Timing adjustment menu screen".

(3) Platen centering adjustment

⚠ **Note:**
- Be sure to perform the centering adjustment for each tray before starting this adjustment.

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [5. Centring adj.] key.
4. "Centering adjustment screen"
   Press the arrow key until "Platen" appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
   Set the new test chart on the original glass and select A3 or 11 x 17 size paper, then press the START button.
7. Check the miscentering by comparing the original with the copy.

- Standard value: Within ± 2mm

8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Centering adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.

- Setting range: -74 (inward direction of the center line) ~ +74 (rear direction of the center line)
  1 step = 0.04mm

10. Repeat steps 5 to 9 until the miscentering is within standard value.
11. Press the [RETURN] key to return to the "Timing adjustment menu screen".

(4) RADF centering adjustment

⚠ **Note:**
- Be sure to perform the centering adjustment for each tray before starting this adjustment.

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [5. Centring adj.] key.
4. "Centering adjustment screen"
   Press the arrow key until "RADF" appears in the message display area.
5. Press the [COPY] key.
6. "Basic screen"
   Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the START button.
   - Adjust the "RADF (double side (second side))", then make a test copy in double side → single side mode and check the loop amount of 2nd outputted paper.
7. Check the miscentering by comparing the original with the copy.
   - Standard value: Within ± 3mm
8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Centering adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -74 (inward direction of the center line) ~ +74 (rear direction of the center line)
     1 step = 0.04mm
10. Repeat steps 5 to 9 until the miscentering is within standard value.
11. Press the [RETURN] key to return to the "Timing adjustment menu screen".

8.8.6 Image read point adjustment

Adjust the image read point (leading edge timing).
For the image read position adjustment, the following two types are available:
- Platen adjustment
- RADF adjustment

Note:

⚠1
- Be sure to perform the restart timing adjustment (engine) before starting this adjustment.
- The RADF read position adjustment is inhibited in the field.
- If you shift this value by a large amount, the RADF read density may change.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [6. Read point adj.] key.
4. "Image read point adjustment screen"
   Select the "Platen adjustment", and press the [COPY] key.
5. "Basic screen"
   Set the new test chart on the original glass and select A3 or 11 x 17 size paper, then press the START button.
6. Make a comparison between original image and test copy image. Then check the image read point.
   - Standard value: 10 ± 1.0mm
7. If it is not within specification, press the # button while holding down the ∗ button.
8. "Image read point adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -20 (small) ~ +20 (large)
     1 step = 0.1mm
9. Repeat steps 5 to 9 until the image read point is within standard value.
10. Press the [RETURN] key to return to the "Timing adjustment menu screen".

8.8.7 Recall standard data

Reset the adjusted set values of timing adjustment to the standard values (factory default data).
The following are included in the return to standard data:

- Recall standard data : Vertical/Horizontal magnification adjustment
- Recall standard data : Restart timing adjustment
- Recall standard data : Paper feed loop amount adjustment
- Recall standard data : Leading edge original erasure adjustment
- Recall standard data : Centering adjustment
- Recall standard data : Original read point adjustment

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [2. Timing adj.] key.
3. "Timing adjustment menu screen"
   Press the [7. Factory default] key.
4. "Resetting standard data screen"
   Press the arrow key until the desired item appears in the message display area.
5. Press the [YES] key to reset the set values to the standard values that have been selected and to return to the "Timing adjustment menu screen". Press the [NO] or [RETURN] key, then the set values are not reset and return to the "Timing adjustment menu screen".
6. To reset another adjustment item, repeat steps 4 to 5.
7. Press the [RETURN] key to return to the "Timing adjustment menu screen".

8.9 Running Test Mode

Conduct a test while in continuous copying operation.
Select the [3. Running mode] in the "36 mode menu screen", then the "Running test mode menu screen" will appear.

The following items can be selected:

A. Intermittent copy mode
In this mode, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec., then starts the same operation again.

B. Paperless intermittent copy mode
It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection. Also, like running mode 1, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec., then starts the same operation again.

C. Paperless mode
It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam dection.

D. Paperless/endless mode
It automatically sets the copy quantity to infinity. Also, like running mode 3, it makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.

E. Running mode
Running mode consists of paperless/endless mode plus an operation consisting of an optics each time scan and an automatic paper feed tray change.

8.9.1 Setting method

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [3. Running mode] key.
3. "Running test mode menu screen"
   Press the key according to the desired mode. (Mode 1 to Mode 5)
4. "Basic screen"
   Press the START button.
5. After checking the copy operation, press the Stop button to stop copy operation.
6. Press the # button while pressing the * button to return to the "Running mode menu screen".
7. To perform another running test mode, repeat steps 3 to 6.
8. Press the [RETURN] key to return to "36 mode menu screen".

8.10 Test Pattern Output

Output various test patterns and use the results to detach defective parts.
Select the [4. Test pattern] in the "36 mode menu screen", then the test pattern output screen will appear.

Note:

△3 • For modes not listed specifically on the Service Manual, output should not be made.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [4. Test pattern] key.
3. "Test pattern output screen"
   Enter a pattern number to be output from numeric key.
4. Press the [COPY] key.
5. "Copy screen"
   Select A3 or 11 x 17 and press the start button to output a test pattern.
6. When you want to output another test pattern, press the # button while pressing the * button and repeat the procedures 3 to 5 above.
7. Press the [RETURN] key to return to the "36 mode menu screen".

No.1 Overall Halftone

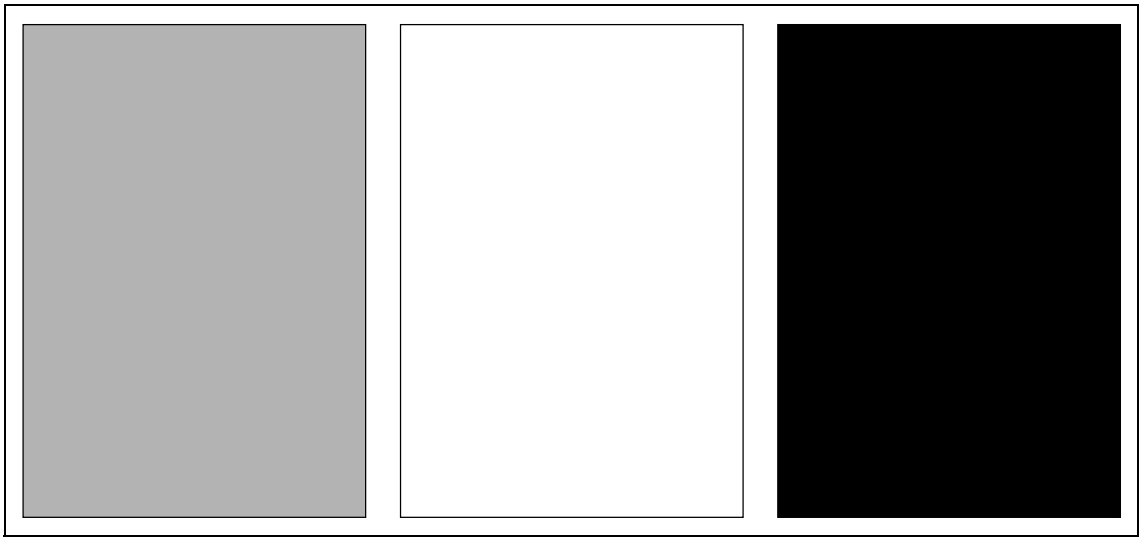
[Check Items]

- When the density is set to 70 (halftone)
  When there are white stripes, black stripes or uneven density found, check the printer system for any abnormality.
  [Recommended checkpoints]: Developing unit, and cleaning unit
- When the density is set to 0 (white)
  When there is image gray back ground, check the printer system for any abnormality.
  [Recommended checkpoints]: Charging corona, and high voltage contact
- When the density is set at 255 (black)
  When the density is thin, check the printer system for any abnormality.
  [Recommended check point]: Write unit

* For information about setting the density, see “7.11 Test pattern density adjustment” below.

Test Pattern

When the density is set to 70 When the density is set to 0 When the density is set to 255



No.5 Gradation Pattern

[Check Items]

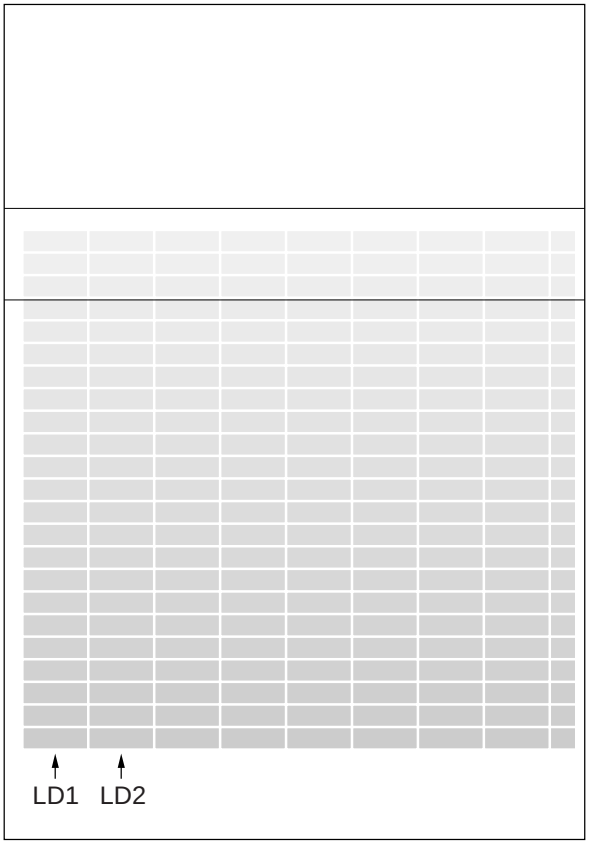
- Check the pattern to see if the laser output of LD1/LD2 is uniform with the gradation continuously reproduced.

[Recommended checkpoints]: Write unit, and LD1/LD2 offset adjustment

* For LD1/LD2 offset adjustment, see “1. Process adjustment”.

△3 * Since a single beam is employed for 7235/7228/7222, the pattern shown as LD2 in the illustration below is also output by LD1.

Test Pattern



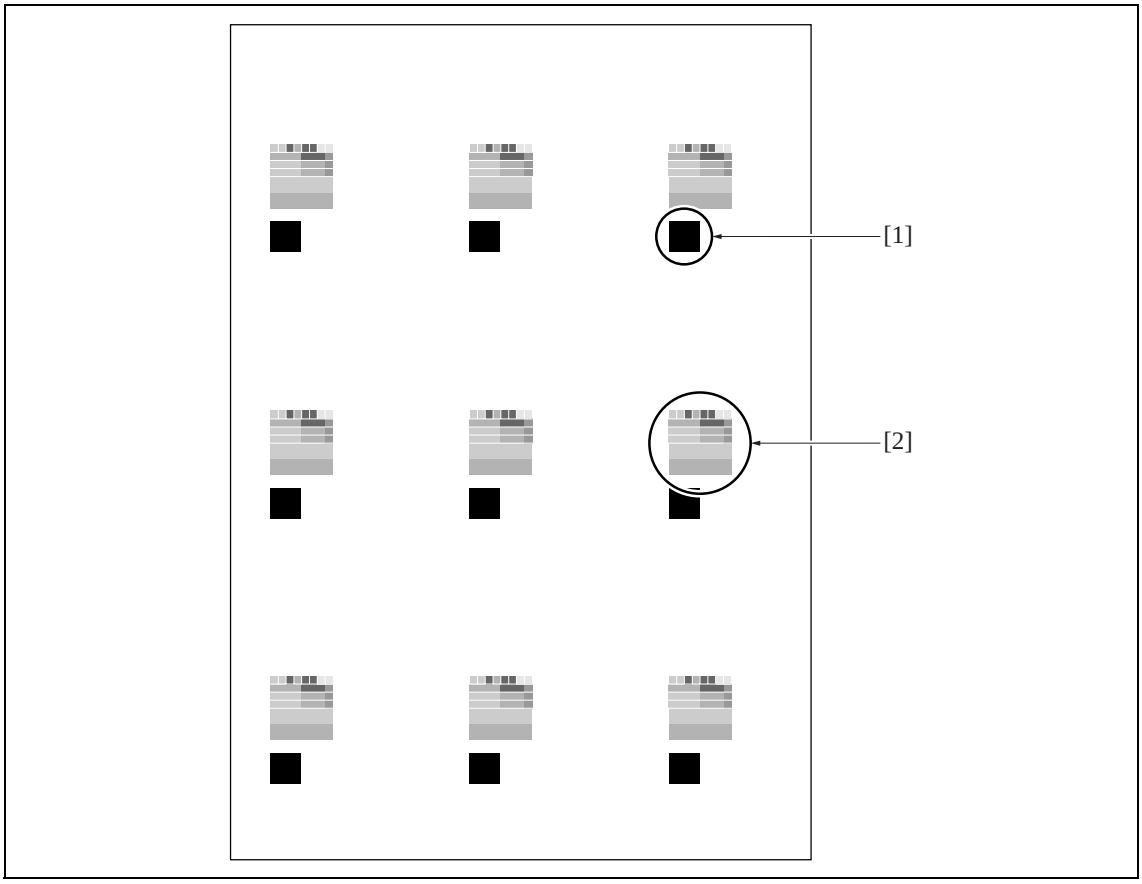
No.11 Beam Check

[Check Items 1]
- For developement and analysis of the write unit

[Check Items 2]
- Check the solid black pattern to see if there is uneven density found in the main scanning and sub-scanning directions.
  [Recommended checkpoints]: Charging corona, transfer/separation corona unit, and developing unit

[Check Items 3]
- Check to see if there is any image repelling in the gradation pattern at the leading/trailing edge of the test pattern in the feed direction.
  [Recommended checkpoint]: Transfer/separation corona unit

Test Pattern



[1] Solid black pattern

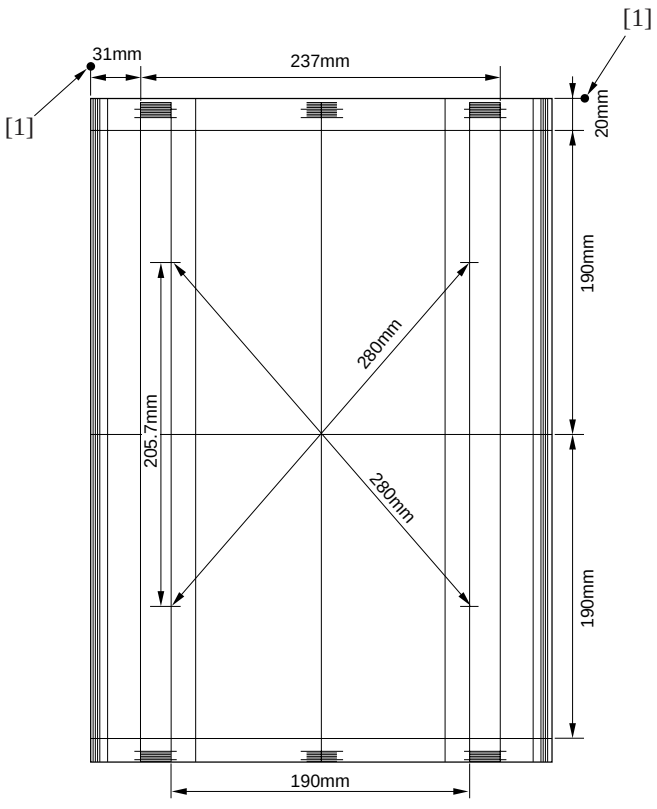
[2] Gradation pattern

No.16 Linearity Evaluation Pattern

[Check Items]

Judge from this test pattern which of the scanner system and the printer system is abnormal.
Items that can be checked include horizontal magnification, vartical magnification, tilt image, and leading edge timing of the printer system. If the copy image is defective despite no abnormality being visible on the test pattern, the scanner system is defective.

Test Pattern



[1] Edge of pager

8.11 Test Pattern Density Adjustment

Density of respective patterns is adjusted in the following procedure.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [5. Density adj.] key.
3. "Print density adjustment menu screen"
   Press the [1. Print density adj. (1)] Key.
4. "Print density adjustment screen"
   Press the key according to the desired test pattern to be adjusted.
5. Enter a desired density by a numeric value from the numeric keys, then press the [SET] key. Input range : 000 (light) to +255 (dark).
6. Press the [COPY] key.
7. "Basic screen"
   Press the START button to output a test pattern.
8. Check the density of the output test pattern.
9. Press the # button while pressing the ∗ button to return to the "Print density adjustment screen".
10. To adjust another test pattern, repeat steps 4 to 9.
11. Press the [RETURN] key to return to "Print density adjustment menu screen".

8.12 Image Quality Adjustment

This function adjusts the image quality adjustment.
The following are shown on the image quality adjustment menu:

- RADF scan density adj.
- Non-image area erase check.

8.12.1 RADF scanning density adjustment

When the slit glass is replaced, adjust the density when reading the original with the RADF.

Note:

- The mechanical adjustment, optical adjustment and electrical adjustment of the scanner are completed.
- Make sure that the slit glass is cleaned.
- Make sure that the white chart is not dirty or folded.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [6. Image quality adj] key.
3. "Image quality adjustment screen"
   Press the [1. RADF Scan density adj.] key.
4. "RADF Scanning density adjustment screen"
   Set the white chart in A4 direction on the RADF.
5. Press the [START] key.
6. Check that "Completed" appears in the message display area.
7. If "ERROR" appears in the message display area, then repeat steps 4 and 5.

Note:

- If "ERROR" is displayed repeatedly, there is a possibility of a defect in the adjustment of the scanner machine, optics, or electricrelated parts.

8. Press the [RETURN] key to return to the "Image quality adjustment screen".

8.12.2 Non-image area erase check

Carry out a survey of the installation environment after the machine is newly installed or moved to a different location.
Preparation:

- Be sure that the RADF is fully open.
- Do not place anything on the platen glass.
- The platen glass must not be dirty.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [6. Image quality adj] key.
3. "Image quality adjustment screen"
   Press the [2. Non-image Area Erase check] key.
4. "Non-image area erase check screen"
   Press the [START] key.
5. Confirm that "Operation OK" appears on the message display.
   If "Operation NG" appears, carry out non-original erasure installation survey once again while seeing to "Trouble and Remedy" below.
6. Press the [RETURN] key to return to the "Image quality adjustment screen".

B. <Trouble and Remedy>

(1) Warning-1

Adjust for Extreme Brightness. In many cases, the Nonimage-area-erase function will not operate correctly.
Please confirm "adjustment" - "36 mode" columns of the Service Manual.

(2) Remedy-1

If you use the non-original erasure function, or copy originals that have a dark background using the nonoriginal erasure method, relatively infrequently, use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again.

(3) Warning-2

A datum with potentioal not to function non-imagearea-erase is found.
Please confirm "adjustment" - "36 mode" columns of the Service Manual.

(4) Remedy-2

If you use the non-original erasure function relatively infrequently, you can use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, reinstall the machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again. In this case, if there is a bright light source, such as a fluorescent light, directly above the machine, reconsider the installation location and direction, or take steps to block off the light from the light source (by using a cover, for example), then carry out the installation survey once again.

8.13 List Print

Select the [7. List Print] from the “36 mode menu screen” to display the list print menu screen.
You can select following menu options from this screen.

- Test pattern
- Font pattern
- Memory dump list
- Management list
- Adjustment list
- Log list (1)
- Log list (2)
- Analysing list
- △3 E-Mail KRDS com.list

Note:

• Don't try to touch a mode not mentioned.

A. Test pattern

This option is used to output a grid pattern consisted of line width of 2 dots and line-to-line space of 500 dots. From this pattern, you can check the write system for normal performance.

B. Font pattern

This option outputs the font list built in the engine.

C. Memory dump list

This option is used to dump out data (in HEX and ASCII format) after the address specified in E-RDH memory (this list is referenced for troubleshooting).

D. Management list

This option outputs the machine status, counter information and history of jam and so on.

E. Adjustment list

This option outputs a list of current adjusting values in the 25/36 mode.

F. Log list (1)

The data from the memory is dumped in the HEX format and the ASCII format. (for analyzing trouble)
Normally not used.

G. Log list (2)

The data from the memory is dumped in the HEX format and the ASCII format. (for analyzing trouble)
Normally not used.

H. Analysing list

Outputs the necessary list prints together if trouble occurs in the field. (for analysing trouble)
Normally not used.

(1) Procedure

1. Enter the 36 mode.
2. “36 mode menu screen”
   Press the [7. List print] key.
3. “List print menu screen”
   Press the key corresponding to the desired menu option.
4. “List print screen”
   When outputting the memory dump list, specify the start and end addresses.

Note:

• The memory dump list is dump output in both the HEX and ASCII format.

5. Press the [COPY] key.
6. “Basic screen”
   Press the [START] key to output the list.
7. Press the # button while depressing the ∗ button to return to the list print screen.
8. When outputting another list, repeat above steps 3 to 7.
9. Press the [RETURN] key to return to the list print menu screen.

△3 **I. E-Mail KRDS com.list**

This option outputs the result of the E-mail KRDS communication.

8.14 Counter Clear

The counter must be cleared whenever the drum or fixing parts/unit is replaced.
Select the [8. Counter Clear] from the 36 mode menu screen to display the counter clear screen.
Following menu options are available from this screen.

- Drum related counter (Drum counter, Drum drive counter).
- Fixing counter (Fixing web counter).

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [8. Counter clear] key.
3. "Counter clear screen"
   Press the key corresponding to the item to be cleared.
4. Message in the message display area will confirm if you really want to clear the item. Press the [YES] key. When the item is cleared, the "Counter clear screen" will be restored.
5. When clearing another counter, repeat above steps 3 and 4.
6. Press the [RETURN] key to return to "36 mode menu screen".

Reference:

- The operation here is the same as [2. PM count] - [3. Counter clear] on the "25 mode menu screen".

8.15 Adjustment of RADF

Adjustments of RADF are performed in the following procedures. For the adjustment, A3 or 11 x 17 copy paper should be used.

A. Procedure

1. Select the [9. RADF adj.] from the "36 mode menu screen" to display the RADF adjustment menu.
   The following are included in the RADF adjustment:

"1 Vertical/horizontal magnification (Drum clock) adjustment"
"2 Restart timing adjustment"
"3 Paper feed loop amount adjustment"
"4 Centering adjustment"
"5 RADF scanning density adjustment"

2. Press the key corresponding to the desired item. The screen corresponding to the selected item will appear.
3. Press the [Preceding screen] key in each of the RADF adjustment screens to return to the "RADF adjustment menu screen".

8.15.1 Vertical magnification adjustment in RADF system

Adjust the vertical magnification of the RADF.

A. Procedure

1. Select the [9. RADF adj.] from the "36 mode menu screen" to display the "RADF adjustment menu".
2. Select [1. Drum clock adj.] from the "RADF adjustment menu" and the "Magnification screen" will appear.
3. Using the arrow key will allow you to select the following items.

- Vertical magnification adjustment : RADF (single side, 50%)
- Vertical magnification adjustment : RADF (single side, 100%)
- Vertical magnification adjustment : RADF (single side, 200%)
- Vertical magnification adjustment : RADF (single side, 400%)

- Vertical magnification adjustment : RADF (double side, 50%)
- Vertical magnification adjustment : RADF (double side, 100%)
- Vertical magnification adjustment : RADF (double side, 200%)
- Vertical magnification adjustment : RADF (double side, 400%)

4. Enter a desired value from the numeric keys on the screen, then press the [SET] key to validate your entry.
5. Turn on the Basic Screen by pressing the [COPY] key, then make a test copy from the basic screen.
6. Press the # button while depressing the ∗ button to return to the "Magnification adjustment screen".
7. Press the [Preceding screen] key in the "Vertical/horizontal magnification adjustment screen" to return to the "RADF adjustment menu screen".

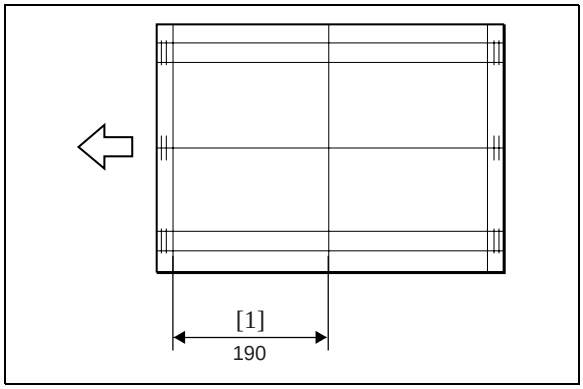
B. Vertical magnification adjustment in RADF system

Adjust the vertical magnification while in RADF copying.

a. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [9. RADF adj.] key.
3. "RADF adjustment menu screen"
   Press the [1. Drum clock adj.] key.
4. "Vertical/Horizontal magnification (drum clock) adjustment screen"
   Press the arrow key to select the magnification you want to adjust.
   The screen changes in the following order: Single sided 50% → 100% → 200% → 400% → Double sided 50% → 100% → 200% → 400%.
5. Press the [COPY] key.
6. Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the START button.
7. Use a ruler to measure the vertical magnification.

- Standard value: ± 0.5% max (life size)
  Within ± 1.0mm with respect to 190mm



[1] Vertical magnification

8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Vertical/Horizontal magnification (drum clock) adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
- Setting range: -20 (reduction) ~ +20 (enlargement)
  1 step = 0.1%

10. Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11. To adjust another adjustment item, press the arrow key to select the desired adjustment.
12. Press the [RETURN] key to return to the "RADF adjustment menu screen".

8.15.2 Adjustment of restart timing

Use the following procedure to adjust the RADF restart timing.

A. Procedure

1. Select the [9. RADF adj.] from the "36 mode menu screen" to display the "RADF adjustment menu".
2. Select [2. Restart timing] from the "RADF adjustment menu" and the "Re-start timing adjustment screen" will appear.

3. Using the arrow key will allow you to select the following items.
   - Restart timing adjustment : RADF (single side)
   - Restart timing adjustment : RADF (double side, front)
   - Restart timing adjustment : RADF (double side, back)
4. Enter a desired value from the numeric keys on the screen, then press the [SET] key to validate your entry.
5. Turn on the Basic Screen by pressing the [COPY] key, then make a test copy from the basic screen.
6. Check the restart timing.
   Standard value: -3.0mm maximum (Life size).
7. If it is not within specification, press the # button while depressing the ∗ button
8. "Restart timing adjustment screen"
   Enter the value from the numeric keys, then press the [SET] key.
   - Setting range: -50 (delays the timing) ~ +50 (advances the timing)
     1 step = 0.1mm
9. Repeat steps 5 to 9 until the re-start timing meets the standard value.
10. Press the [RETURN] key in the "Restart timing adjustment screen" to return to the "RADF adjustment menu screen".

8.15.3 Paper feed loop adjustment

⚠1 **Reference:**
- The operation described here is the same as the adjustment in "36 mode menu screen" -[2. Timing adjustment].

Adjust the paper feed loop quantity while in RADF copying.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [9. RADF adj.] key.
3. "RADF adjustment menu screen"
   Press the [3. Paper Loop adj.] key.
4. "Paper feed loop amount adjustment screen"
   Press the [COPY] key.
5. "Basic screen"
   Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the START button.
6. Check paper feed loop volume.
7. When the paper feed loop quantity is not appropriate, press the # button while pressing the ∗ button.
8. "Paper feed loop amount adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
   - Setting range: -10 (decrease) ~ 00 (standard) ~ +10 (increase)
     1 step = 0.5mm
9. Repeat above steps 4 to 8 until an appropriate paper feed loop volume is obtained.
10. Press the [RETURN] key to return to the "RADF adjustment menu screen".

8.15.4 Centering adjustment

⚠1 **Reference:**
- The operation described here is the same as the adjustment in "36 mode menu screen" -[2. Timing adjustment].

Adjust the centering of the image in the direction at a right angle to the original feed direction of the RADF. For adjustment items, the following three items can be selected:
- Centering adjustment : RADF (single side)
- Centering adjustment : RADF (double side, front)
- Centering adjustment : RADF (double side, back)

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [9. RADF adj.] key.
3. "RADF adjustment menu screen"
   Press the [4. Centring adj.] key.
4. "Centering adjustment screen"
   Press the arrow key until the desired item appears in the message display area.
5. Press the [COPY] key.

6. "Basic screen"
   Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the START button.
- When the RADF (double side, back) is selected, make copies from double side → single side mode, and use the second for the adjustment.

7. Check the miscentering by comparing the original with the copy.
- Standard value: Within ± 3mm

8. If it is not within specification, press the # button while holding down the ∗ button.
9. "Centering adjustment screen"
   Enter a value from the numeric keys, then press the [SET] key.
- Setting range: -74 (inward direction of the center line) ~ +74 (rear direction of the center line)
  1 step = 0.04mm

10. Repeat steps 5 to 9 until the miscentering is within standard value.
11. Press the [RETURN] key to return to the "RADF adjustment menu screen".

8.15.5 RADF scanning density adjustment

Whenever the slit glass is replaced, its density in reading an original must be adjusted in the following manner.

Note:
- Before starting this operation, every adjustment must be completed for the scanner's mechanical, optical and electric system.
- Make sure that the slit glass must be cleaned.
- Make sure that the white chart is not stained or folded.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [9. RADF adj.] key.
3. "RADF adjustment menu screen"
   Press the [5. RADF Scan density adj.] key.
4. "RADF scanner density adjustment screen"
   Set the white chart in A4 direction on the RADF.
5. Press the [START] key.
6. Make sure that the message "Completed" is indicated in the message display area.
7. If the message "ERROR" appears in the message display area, repeat above steps 4 and 5.

Note:
- If "ERROR" is displayed repeatedly, there is a possibility of a defect in the adjustment of the scanner machine, optics, or electricrelated parts.

8. Press the [RETURN] key to return to the "RADF adjustment menu screen".

8.15.6 RADF image read point adjustment

Adjust the original read position while in RADF copying.

Note:
- The RADF read position adjustment is inhibited in the field.

8.16 FNS Adjustment (FS-112 only)

Adjust the alignment plate position of the finisher. When the sheets of paper exited from the finisher are uneven, adjust the corresponding paper size.

A. Procedure

1. Enter the 36 mode.
2. "36 mode menu screen"
   Press the [10. FNS adj.] key.
3. "FNS adjustment menu screen"
   Press [1. FNS alignment plate position adjustment (rear)] or [2. FNS alignment plate position adjustment (front)].
4. "FNS matching plate position adjustment screen"
   Press the arrow key until the target paper size of the adjustment is displayed.
5. Press the [Copy screen] key to display the basic screen. Set the output setting to the group mode and press the [OK] key.
   Conduct the test copy on the paper size in which irregularity occurs.

6. Check the positions of the alignment plate and the paper from the paper exit side.
7. When irregularity still recurs, press the # button while pressing the ∗ button.
8. "FNS matching plate position adjustment screen"
   Enter an adjusting value from the numeric keys, then press the [SET] key.
   - Setting range: -10 ~ +10
     1 step = 0.2mm
9. To adjustment of another paper size, select it from the arrow keys, then repeat steps 4 to 7.
10. Press the [RETURN] key to return to the "FNS adjustment menu screen".

8.17 FNS Adjustment (FS-114 only)

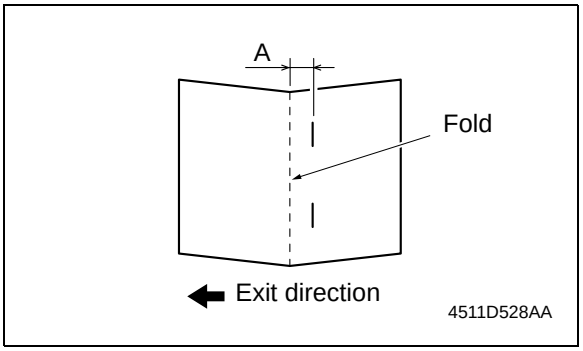
Perform each finisher adjustment.

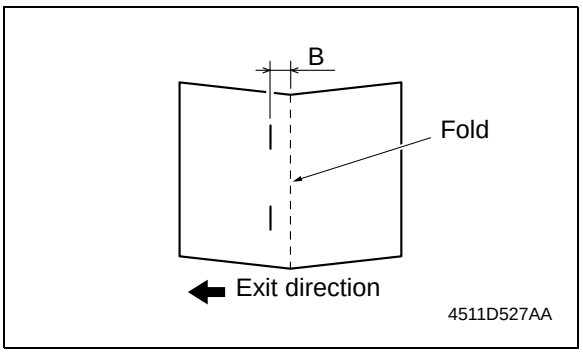
8.17.1 Fold & Stitch position adjustment (SK-114)

Adjust the fold & stitch position of the saddle kit.
It is adjusted when the stapling unit 1 or 2 is replaced, when the staple position is not correct, and when the staple tile adjustment is performed.

A. Procedure

1. Enter the 36 mode.
△3 2. "36 mode menu screen"
   Press any key to return again to "36 mode menu screen". Only through this operation, [10. FNS adj.] is made effective.
   Press the [10. FNS adj.] key.
3. On the "FNS adj. menu screen",
   select [1. Fold&Stitch posit adj.].
4. On the "Fold & Stitch posit adj. screen",
   select the paper size you want to adjust by using the arrow keys.
5. Set five A4 originals in the ADF.
6. Press the [Copy screen] key to output a fold&stitch sample.
7. Fold the output sample along its crease.
8. Check the distance between the fold and staple positions.
   - Standard A, B: 0 ± 1.5mm





9. If it is not within the standard, press # button while pressing ∗ button.
10. On the "Fold & Stitch position adj. screen",
    enter a numeric value using the numeric key-pad. Then, press [SET] key.
    - Setting range: -10 ~ +10
      1 step = 0.5mm
    - In case of A: set a plus value
    - In case of B: set a minus value
11. Repeat the steps 4 through 9 until the fold&stitch position comes within the standard range.
12. Press [RETURN] and go back to the "FNS adj. menu screen".

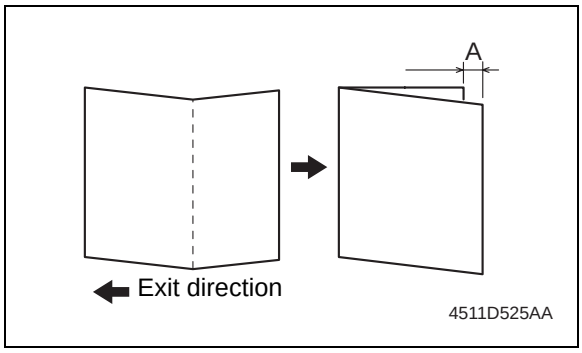
8.17.2 Fold position adjustment (SK-114)

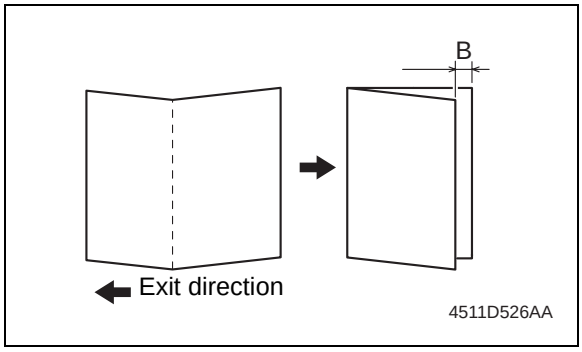
Adjust the fold position of the saddle kit.
It is adjusted when the fold unit is replaced, when the fold position is incorrect, and when the folding tilt adjustment is performed.

A. Procedure

1. Enter the 36 mode.
3. "36 mode menu screen"
   Press any key to return again to "36 mode menu screen". Only through this operation, [10. FNS adj.] is made effective.
   Press the [10. FNS adj.] key.
3. On the "FNS adj. menu screen", select [2. Fold position adj.].
4. On the "Fold position adj. screen", select the paper size you want to adjust by using the arrow keys.
5. Press the [Copy screen] key to output a fold sample.
6. Fold the output sample along its crease.
7. Check the misalignment.

- Standard A, B: 0 ± 1.5mm





8. If it is not within the standard, press # button while pressing ∗ button.
9. On the "Fold position adj. screen", enter a numeric value using the numeric keypad. Then, press [SET] key.

- Setting range: -10 ~ +10
  1 step = 0.5mm
- In case of A: set a plus value
- In case of B: set a minus value

10. Repeat the steps 4 through 8 until the fold position comes within the standard range.
11. Press [RETURN] and go back to the "FNS adj. menu screen".

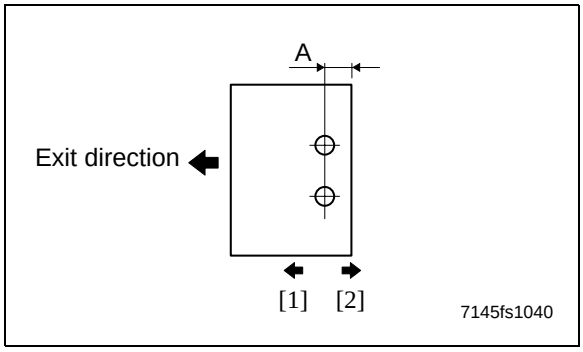
8.17.3 Punch position adjustment (PK-114)

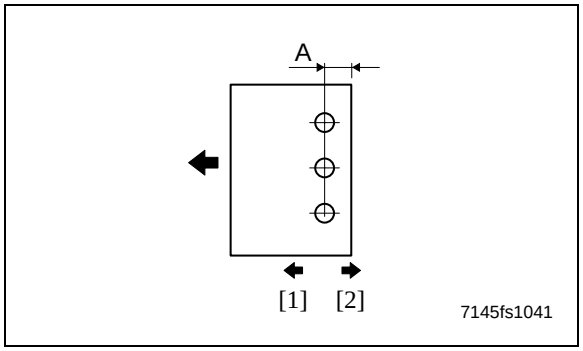
Adjust the hole positions of the punch kit.

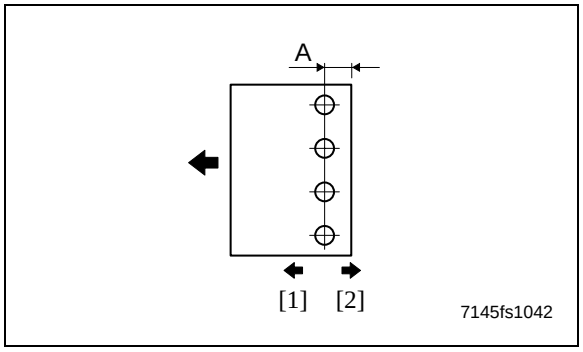
A. Procedure

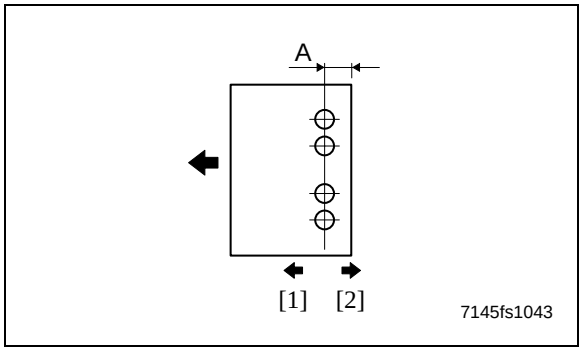
1. Enter the 36 mode.
3. "36 mode menu screen"
   Press any key to return again to "36 mode menu screen". Only through this operation, [10. FNS adj.] is made effective.
   Press the [10. FNS adj.] key.
3. On the "FNS adj. menu screen", select [3. Punch position adj.].
4. Press the [Copy screen] key to output a punched sample.
5. Check the hole positions on the sample.

- Standard A: 13 ± 3mm (2 holes)
  9.5 ± 3mm (2 holes and 3 holes)
  11 ± 3mm (4 holes)









6. If it is not within the standard, press # button while pressing ∗ button.

7. On the “Punch position adj. screen”, enter a numeric value using the numeric key-pad. Then, press [SET] key.

- Setting range: -10 ~ +10
  1 step = 0.5mm
- To shift in [1] direction: set a plus value
- To shift in [2] direction: set a minus value

8. Repeat the steps 4 through 7 until the punch positions come within the standard range.

9. Press [RETURN] and go back to the “FNS adj. menu screen”.

8.17.4 Punch loop adjustment (PK-114)

Adjust the loop amount of the punch kit.
It is adjusted when the punch holes are tilted, or when paper frequently jams in punch mode.

A. Procedure

1. Enter the 36 mode.

△3 *2.* “36 mode menu screen”
Press any key to return again to “36 mode menu screen”. Only through this operation, [10. FNS adj.] is made effective.
Press the [10. FNS adj.] key.

3. On the “FNS adj. menu screen”, select [4. Punch loop adj.].

4. On the “Punch loop adj. screen”, select the paper size you want to adjust by using the arrow keys.

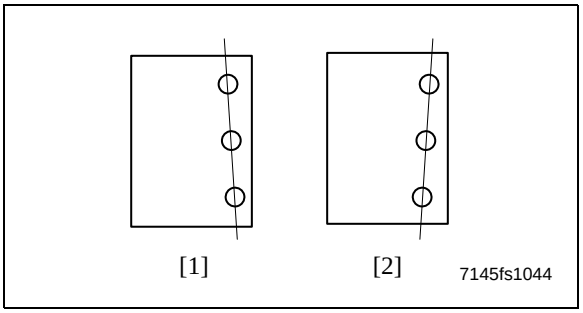
5. Press the [Copy screen] key to output a punched sample.

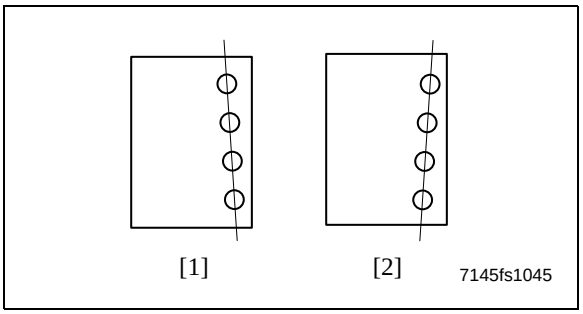
6. Check the tilt of holes on the sample.

7. If the holes are tilted, press # button while pressing ∗ button.

8. On the “Punch loop adj. screen”, enter a numeric value using the numeric key-pad. Then, press [SET] key.

- Setting range: -4 ~ +4
  1 step = 1.0mm





△3 • When the punch part JAM occurs frequently: set a minus value

△3 • When inclination is in a punch hole: set a plus value (In both the cases of [1] and [2], it sets to plus side.)

9. Repeat the steps 4 through 7 until there is no tilt.

10. Press [RETURN] and go back to the “FNS adj. menu screen”.

9. 47 MODE

9.1 47 Mode Setting Method

A. 47 Mode

This mode provides self-diagnostic functions (input/output check function) to check and adjustment the various signals and loads.

B. Operation method (to start 47 mode)

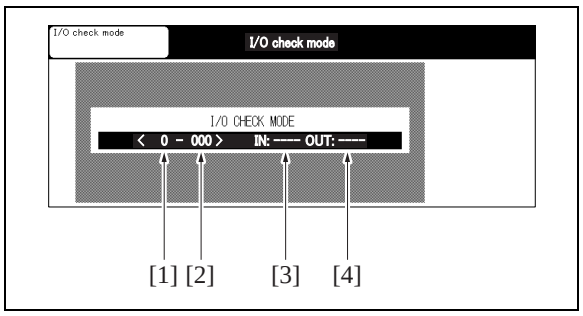
(1) 47 Mode startup

a. Turn the SW2 (Sub power switch) OFF.

△2 b. Turn the SW2 ON while pressing 4 and 7 of the copy quantity setting buttons.
If security enhancement is enabled, input CE password.

c. The moment "I/O check mode" is displayed in the message display area at the center of the screen, check to see if the 47 mode is activated.

"47 mode menu screen"



[1] Input/Output check code
[2] Multi code
[3] Input check
[4] Output check

(2) Input check method

a. Using the numeric keys, enter the code input for the desired signal (sensor, etc.) to check.

b. When using the multi mode, press the ∗ button and enter the multi code according to the desired input check item (signal) with the numeric keys.

c. Procedure

1. Enter the 47 mode.
2. "47 mode menu screen"
Using the numeric keys, enter the input check code. *1
3. When using the multi mode, press the ∗ button.
4. Using the numeric keys, enter the multi code.*1
5. Input check result will appear in the input check result display area.
6. To check other signal input check, repeat steps 2 to 5.

*1 See "[5] Input check list".

(3) Output check method

a. Enter the output code (see the input/output check code) of the operating load you want to check with the number of sheets setting button.

b. When using the multi mode, press the ∗ button and enter the multi code according to the desired output check item (load).

c. Press the [START] key to perform the output check.

d. To end the output check, press the [STOP] key.

e. Procedure

1. Enter the 47 mode.
2. "47 mode menu screen"
Using the numeric keys, enter the output check code.*2
3. When using the multi mode, press the ∗ button.
4. Using the numeric keys, enter the multi code.*2
5. Press the [START] key to perform the output check.
6. To end the output check, press the [STOP] key.
7. To make another output check, repeat steps 2 to 6.

*2 See "[6] Output check list".

(4) Exiting the 47 mode

To end the 47 mode, turn the SW2 OFF.

9.2 RADF Original Size Detection

This adjustment is done when RADF fails to correctly detect size of an original.

A. Procedure

1. Enter the 47 mode.
2. "47 mode menu screen"
   Press "69" by means of the numeric keys.
   Check that "069-000" appears in the message display area.
3. Set the original guide plate to the minimum size (width) position, then press the [START] key.
4. To end the output check, press the [STOP] key.
5. Press the ∗ button.
6. Enter "1" from the the numeric keys.
   Make sure that "069-001" is indicated in the message display area.
7. Set the original guide plate to the maximum size (width) position, then press the [START] key.
8. To end the output check, press the [STOP] key.
9. To end the 47 mode, turn the SW2 OFF.

9.3 Bypass Size Detection Adjustment

Perform this adjustment if paper size detection at the bypass feed tray does not function correctly.

A. Procedure

1. Enter the 47 mode.
2. "47 mode menu screen"
   Press "28" by means of the numeric keys.
   Check that "028-000" appears in the message display area.
3. Set a sheet of A4R paper in the bypass tray.
4. Press the ∗ button.
5. Press [1] by means of the numeric keys.
   Check that "028-001" appears in the message display area.
6. Press the [START] key.
7. Press the [STOP] key.
8. Set a sheet of A4 paper in the bypass tray.
9. Press the ∗ button.
10. Press "2" by means of the numeric keys.
    Check that "028-002" appears in the message display area.
11. Press the [START] key.
12. To end the output check, press the [STOP] key.
13. ⚠1 Set a sheet of B6R paper in the Bypass tray.
14. Press the button.
15. Press [3] by means of the numeric keys.
    Check that "028-003" appears in the message display area.
16. Press the [START] key.
17. Press the [STOP] key.
18. To end the 47 mode, turn the SW2 OFF.

9.4 Action for Mounting When Reinstalling the HDD

Removing the HDD for analysis of an abnormality and then reinstalling it after turning on and off the power may result in no recognition of the HDD. To avoid a condition like this, conduct this setting.

A. Procedure

1. Enter the 47 mode.
2. "47 mode setting screen"
   Press the No. of sheets setting button to enter "15". Check to see if "015-000" is displayed in the message display column.
3. Press the ∗ button.
4. Press the No. of sheets setting button to enter "97".
   Check to see if "015-097" is displayed in the message display column.
5. Press the [START] key.
6. Press the [STOP] key to terminate the setting.
7. To end the 47 mode, turn the SW2 OFF.

Note:

- When the data is in nonconformity, an error may occur. In that case, execute the format (key operator mode).

9.5 Input Check List

Classification	Symbol	Code	Multi code	Name	Display	
					ON	OFF
Analog signal	TSCB	00	—	Toner control sensor board (Drum temperature)	0 to 255	
	TSCB	01	—	Toner control sensor board	0 to 255	
	TSCB	02	—	Toner control sensor board	0 to 255	
	TH1	03	—	Fxing temperature sensor/1	0 to 255	
	TH2	04	—	Fxing temperature sensor/2	0 to 255	
	TDS	05	—	Toner temperature sensor	0 to 255	
	HUM1	06	—	Humidity sensor	0 to 255	
Paper feed	PS8	10	1	No paper sensor/U	Paper	No paper
	PS11		2	No paper sensor/L		
	PS103		3	No paper sensor/3		
	PS108		4	No paper sensor/4		
	PS13		5	Bypass tray no paper sensor	No paper	Paper
	PS153		6	No paper sensor (LT-203)		
	PS7	12	1	Upper limit sensor/U	Upper limit	Not at upper limit
	PS10		2	Upper limit sensor/L		
	PS102		3	Tray upper limit sensor/3		
	PS107		4	Tray upper limit sensor/4		
	PS152		6	Tray upper limit sensor (LT-203)		
	PS9	13	1	Tray set sensor/U	Yes	No
	PS12		2	Tray set sensor/L		
	PS101		3	Tray sensor/3		
	PS106		4	Tray sensor/4		
	—	16	1	Main body upper tray paper size signal	0 to 9*1	
	—		2	Main body lower tray paper size signal		
	PSDTB/3		3	Paper size detection signal board/3		
	PSDTB/4		4	Paper size detection signal board/4		

*1 Paper size signal (Inch)

Tray	Symbol displayed									
	1	2	3	4	5	6	7	8	9	0
1	B5	B4	A5R	A4	A4R	F4	5.5 x 8.5	8.5 x 11	8.5 x 11R	8.5 x 14
2,3,4	A5R	A4	A4R	A3	F4	5.5 x 8.5	8.5 x 11	8.5 x 11R	8.5 x 14	11 x 17

*1 Paper size signal (Metric)

Tray	Symbol displayed									
	1	2	3	4	5	6	7	8	9	0
1	B5	B4	A5R	A4	A4R	F4	5.5 x 8.5	8.5 x 11	8.5 x 11R	8.5 x 14
2,3,4	B5	B4	A5R	A4	A4R	A3	F4	8.5 x 11	8.5 x 11R	11 x 17

*1 Paper size signal (Common)

Tray	Symbol displayed									
	1	2	3	4	5	6	7	8	9	0
LCT(3)	A4	A4R	8.5 x 11	8.5 x 11R	B5R	B5	A4	A4R	8.5 x 11	8.5 x 11R

	Classification	Symbol	Code	Multi code	Name	Display	
						ON	OFF
③	Paper feed • Conveyance	PS1	20	1	Registration sensor	Paper	No paper
		PS104		2	Paper feed sensor/U (DB upper tray)		
		PS105		3	Paper feed sensor/L (DB lower tray)		
		PS21		4 (7145/7235/7228)	Timing sensor/U (Main body upper tray)		
		PS22		5 (7145/7235/7228)	Timing sensor/L (Main body lower tray)		
		PS155		6	Paper feed sensor (LT-203)		
		SW151		7	Interlock switch (LT-203)	Open	Close
		PS2	22	1	Fixing exit sensor	Paper	No paper
		SW3	23	1	Interlock switch	Open	Close
		VR1	28	1	Bypass tray paper size sensor VR	0 to 255	
③	Scanner	—	38	1	Measured LD alarm value (LD1)	0 to 255	
		—		2 (7145)	Measured LD alarm value (LD2)	0 to 255	
		—		— (7235/7228/7222)	Measured LD alarm value	0 to 255*2	
		PS14	40	1 (7145)	Scanner home position sensor	Other than H.P.	H.P.
		PS15		2	APS timing sensor	Open	Close
		PS17		3	APS sensor	Original is provided	No original

③ *2 The results can be displayed by pressing the start button → the stop button in this order.

Classification	Symbol	Code	Multi code	Name	Display	
					ON	OFF
③ Intrinsic functions	—	50	1	Check of DB serial communications (7145) Check of DF serial communications (7235/7228/7222)	0001 Normal	0000 Abnormal or not connected
	—		2	Check of FNS serial communications		
	—		3	Check of scanner serial communications		
	—		4 (7235/7228/7222)	Check of Main drive board serial communications		
		51	1	Judging of the main body type	— (7145) 0096 to 0098*3 (7235/7228/7222)	
	—		2	Judging of the DB type	0 to 6*4	
	TLD	57	1	Toner level detector sensor	Not provided	Provided
	PS5		2	Toner bottle sensor	Provided	Not provided
RADF	PS301	60	1	No original sensor	Paper	No paper
	PS304		2	Cover open/close sensor	Open	Close
	PS303		3	DF open/close sensor	Open	Close
	PS308		4	Original registration sensor	No paper	Paper
	PS309		5	Original conveyance sensor		
	PS302		6	Original exit sensor	Paper	No paper
	PS305		7	Original size sensor/1		
	PS306		8	Original size sensor/2		
	VR301		9	Original size VR	0 to 255	

③ *3 Judging code of the Main type (7235/7228/7222)

Display	0096	0097	0098
Judging type	7222	7228	7235

*4 Judging code of the DB type

Display	0	2	3	5	6
Judging type	Not connected	DB-211	DB-411	DB-211 + LT-203	DB-411 + LT-203

Classification	Symbol	Code	Multi code	Name	Display	
					ON	OFF
FS-112	PS701	70	1	Pressure sensor (Level)	No pressure	Pressure applied
	PS705		2	Shutter sensor	ON	OFF
	PS701		3	Pressure sensor (HP)	No pressure	Pressure applied
	PS704		4	Paper exit full sensor	Other than full	Full
	PS703		8	Exit sensor	Paper	No paper
	PS702		9	FNS entrance censor		
	PS712		10	Stapler HP sensor	Other than H.P.	H.P.
	PS713		12	Staple detection sensor	No staples provided	Staples provided
	PS714		14	Stapler ready sensor	Stapler not ready	Stapler ready
	—		16	24V detect	0V	24V
	PS711		17	Tray upper limit sensor	Upper limit	Not at upper limit
	PS706		18	Tray lower limit sensor	Lower limit	Other than lower limit
	PS707		19	No paper sensor	Paper	No paper
	PS708		20	Stapler unit HP sensor	H.P.	Other than H.P.
	PS709		21	Alignment HP sensor/R		
	PS710		22	Alignment HP sensor/F		
FS-113	PC1	70	1	1st tray exit sensor	Paper	No paper
	PC3		2	Stacking sensor		
	PC4		3	Upper path sensor		
	PC2		4	Lower path sensor		
	PC6		5	1st tray full detection sensor		
	PC7		6	Elevate tray full detection sensor		
	PC9		7	Alignment HP sensor	H.P.	Other than H.P.
	PC14		8	Staple home sensor		
	PC12		9	Stacking roller home sensor		
	PC13		10	Paper exit roller home sensor		
	PC5		11	Process tray paper detection sensor	Paper	No paper
	—		12	Stapler 1 home sensor	H.P.	Other than H.P.

Classification	Symbol	Code	Multi code	Name	Display	
					ON	OFF
FS-113	—	70	13	Staple empty detection sensor 1	No staples provided	Staples provided
	—		14	Self-priming sensor 1	Stapler ready	Stapler not ready
	—		15	Stapler 2 home sensor	H.P.	Other than H.P.
	—		16	Staple empty sensor 2	No staples provided	Staples provided
	—		17	Self-priming sensor 2	Stapler ready	Stapler not ready
	PWB-F		18	Elevate tray top face sensor	Upper limit	Not at upper limit
	PC8		19	Elevate tray paper extractor sensor	ON	OFF
	S2, S3		20	Elevate tray upper limit/lower limit switch	Upper limit	Not at upper limit
	PC10		21	Shift home sensor	H.P.	Other than H.P.
	S4		22	Punch 2-hole/3-hole detection sensor (inch system only)	2 holes	3 holes
	PC15		23	Punch motor pulse sensor	ON	OFF
	PC11		24	Shift motor pulse sensor		
RU-101	PS2		27	Passage sensor	Paper	No paper
⚠1 FS-114	PC4-FN	70	1	Entrance sensor	Paper exists	No paper
	PC5-FN		2	Transport sensor		
	PC6-FN		3	Alignment home position sensor 1	Home position	Except home position
	PC7-FN		4	Alignment home position sensor 2		
	S3-FN		5	Elevate tray upper/lower limit SW	Upper limit	Except upper limit
	S2-FN		6	Shutter detection SW	Close	Open
	S1-FN		7	Front cover open/close detection SW		
	—		9	Pulse sensor	Shade	Transmit
	PC23-SK		10	In & out guide home position sensor	Shade	Transmit
	PC14-FN		11	Elevator tray lower limit sensor	Shade	Transmit
	PC15-FN		12	Top face detection sensor		
	—		13	BK-114 detection	Equipped	Not equipped
	PC3-FN		14	Elevator tray position detect sensor	Shade	Transmit

Classification	Symbol	Code	Multi code	Name	Display	
					ON	OFF
FS-114	PC16-FN	70	15	Shutter home position sensor	Home position	Except home position
	PC11-FN		17	Exit paddle home position sensor		
	PC12-FN		18	Exit roller home position sensor		
	PC8-FN		19	Storage tray paper detect sensor	Paper exists	No paper
	PC10-FN		20	Staple home position sensor	Shade	Transmit
	—		21	Self-priming sensor		
	—		22	Staple empty detection sensor		
	—		23	Staple home sensor		
	—		25	Punch position sensor 1	Transmit	Shade
	—		26	Punch position sensor 2		
	PC1-PK		27	Punch trash full sensor	Shade	Transmit
	PC22-SK		28	Crease roller home position sensor	Home position	Except home position
	S4-FN		29	Transport jam detection SW	Close	Open
	PC26-SK		30	Layable guide home sensor	Shade	Transmit
	PC20-SK		31	Saddle exit sensor	Paper exists	No paper
	PC21-SK		32	Saddle tray empty sensor		
	—		33	Saddle staple home position sensor 1	Shade	Transmit
	—		34	Saddle self-priming sensor 1		
	—		35	Saddle staple empty detection sensor 1		
	—		36	Saddle staple home position sensor 2		
	—		37	Saddle self priming sensor 2		
	—		38	Saddle staple empty detection sensor 2		
	S4-SK		39	Saddle interlock switch	Open	Close
	PC18-SK		40	Saddle exit roller home position sensor	Except home position	Home position
ADU	PS4	80	—	ADU sensor	Open	Close

9.6 Output Check List

	Classification	Symbol	Code	Multi code	Name	Cannot be set or changed in the field
	High voltage/image	L1	00	—	Exposure lamp	
		M4	01	—	Toner supply motor 1	
③		M3	01 (7145)	—	Developing motor	
		M1	01	—	Main motor	
		SD9	01	—	Toner solenoid	
		HV	02	—	Charging	X
			03	—	Transfer	X
			04	—	Separation (AC)	X
			05	—	Transfer + Separation (AC + DC)	X
			06	—	Separation (DC)	X
			07	—	Grid	X
			08	—	Dmax/γ LED	X
③			10 (7145)	—	Guide plate	X
③			11	—	Bias (7145) Bias + Guide plate (7235/7228/7222)	X
③		PRMB	15	1	Service counter clear (Clears service related counter values from the PRMB (Parameter memory board))	
				2	Reuse counter clear (prohibited in the field)	X
				10	EKC data block clear	
				11	Job memory data block clear	
				12	Arbitrary replacement parts data block clear	
				13	Coded dialing data block clear (for Fax)	
				14	One touch data block clear (for Fax)	
				15	Group data block clear (for Fax)	
				16	Fax file format (for Fax)	
				17	FL related non-volatile data initialization (for Fax)	
				18	E-Mail address list clear	
				19	FTP address list clear	
				20	Box No. list clear	
				21	E-Mail Subject list clear	
				22	E-Mail Body list clear	
				23	Initialization of scanner file name	
				24	Initialization of copier file name	
				25	Initialization of SMB data	
				26	Initialization of LDAP data	
				90	Setting of system/copier and initialization of memory switch	
				97	HDD mounting measure	

	Classification	Symbol	Code	Multi code	Name	Cannot be set or changed in the field
③	High voltage/image	PRMB	15	98	Initialize KRDS non volatile area	
				99	Initial generation of document folder	
	Paper feed	SD1	20	1	1st paper feed solenoid/U	
		SD2		2	1st paper feed solenoid/L	
		SD3		3	Bypass solenoid	
		SD101		4	Paper feed solenoid/U	
		SD102		5	Paper feed solenoid/L	
		SD151		6	LT Paper feed solenoid	
		M9	21	1	Paper feed motor	
		M100		2	DB Paper feed motor	
		M150		3	LT Paper feed motor	
③		M9, MC1, MC2		4	Paper feed motor, registration clutch, loop clutch	
		M7	23	1	Tray motor/U	
		M8		2	Tray motor/L	
		M101		3	Tray up motor/3	
		M102		4	Tray up motor/4	
		M151		5	Tray up motor	
		MC1	25	—	Registration clutch	
		MC2	26	—	Loop clutch	
		—	28	1	Bypass size adjustment (A4R in width)	
		—		2	Bypass size adjustment (A4 in width)	
③		—		3	Bypass size adjustment (B6R in width)	
		SD7	29	—	Separation claw solenoid	
	Scanner	M2	31	1	Scanner motor	
③		M5, FM7 (7235)	32	1	Polygon motor (steady rotation) *1	
③		M5, FM7 (7235)		2	Polygon motor (Pre-rotation) *1	
		M2,L1	34	—	Shading correction operation	
		LD	36	—	Laser PWM (0 to 255)	
		LD,M5	37	—	Conpel to laser ON	
		LD,M5	38	—	LD alarm measurement	
		L1	39	—	Platen still APS	
	Main body	M11	40	—	Fixing motor	
		M1	41	1	Main motor (sequential)	
		M1		2	Main motor (motor alone)	
		FM3	42	1	Internal dehumidifying fan/1	
		FM4		2	Internal cooling fan/1	

③ *1 7235 only, FM7 (Polygon cooling fan) also rotates at the same time.

	Classification	Symbol	Code	Multi code	Name	Cannot be set or changed in the field
③	Main body	FM2	42	3 (7145/7235)	Fixing cooling fan	
		FM1		4	DC power supply cooling fan	
		FM5		5	Developing suction fan	
		FM6		6	Internal dehumidifying fan/2	
		FM3,FM6		7	Internal dehumidifying fan/1, 2	
		FM301		8	Cooling fan	
③		FM7		9 (7145)	Internal cooling fan/2 (low speed)	
③		FM7		10 (7145)	Internal cooling fan/2 (high speed)	
		TC	43	—	Total counter	
		L2	45	1	Fixing heater lamp/1	
		L3		2	Fixing heater lamp/2	
	Operation panel	OB	48	—	All LED ON	
		OB	49	—	Operation panel check (Checking for LCD, keys, and buzzer)	
③	Intrinsic functions	M3	50 (7145)	0	Developing motor (motor alone)	
		M3		1 to 255	Developing motor (sequential) • Use the multicode “1 to 255” to set the No. of rotations.	
		PCL	51	—	Pre-charging exposure lamp	
		TSL	52	—	Transfer synchronization lamp	
		SD4	53	—	Cleaning web solenoid	
		M4	55	1	Toner supply motor 1	
		M4, SD9		2	Toner supply motor 1, Toner solenoid	
		M10	56	1	Toner supply motor 2 (CW)	
		M10		2	Toner supply motor 2 (CCW)	
		TLD	57	—	Toner level sensor	
		SD9	58	—	Toner supply solenoid	
		—	59	—	24V power source remote	
	RADF	M301	60	1	Original feed motor (CW)	
		M301		2	Original feed motor (CCW)	
		M303		3	Original reversal motor (CW)	
		M303		4	Original reversal motor (CCW)	
		M302		5	Original conveyance motor (CCW/50%)	
		M302		6	Original conveyance motor (CCW/100%)	
		M302		7	Original conveyance motor (CCW/400%)	
		SD302		8	Rollar pressure solenoid	
		SD301		9	Paper exit solenoid	
		SD303		10	Stamp solenoid	
③		VR301	69*	0	Original size adjustment (small size)	
		VR301		1	Original size adjustment (large size)	

③ * Be sure to execute the operation without fail when DF-320 is installed.

	Classification	Symbol	Code	Multi code	Name	Cannot be set or changed in the field
	FS-112	M701	70	1	FNS conveyance motor	
		M702		2	Paper exit motor (forward rotation)	
		M702		3	Paper exit motor (reverse rotation)	
		M707		4	Pressure motor (forward rotation)	
		M707		5	Pressure motor (reverse rotation)	
		M706		6	Tray up motor(raise)	
		M706		7	Tray up motor (lower)	
		M705		8	Stapler shift motor, (initialize) (A4/F)	
		M705		9	Stapler shift motor, (initialize)(A4/R)	
		M703,M704		10	Alignment motor/R,F (initialize)	
		M703,M704		11	Alignment motor/R,F (A4 size position)	
		M703,M704		12	Alignment motor/R,F (rocking)	
		M708		13	Stapler motor	
③	FS-114	M1-FN M2-FN M3-FN	70	1	Exit motor Transport motor Entrance motor	
		M4-FN M5-FN		3	Alignment motor 1 Alignment motor 2	
		M11-FN		5	Elevator motor (up)	
		M11-FN		6	Elevator motor (down)	
		M12-FN		7	Shutter opening motor	
		M6-FN		11	Exit open/close motor	
		M9-SK		12	Saddle exit open/close motor	
		M7-FN		17	Stapling unit moving motor	
		M10-SK		23	Crease motor	
		SL1-FN		53	Storage paddle solenoid	
		SL2-FN		54	Exit paddle solenoid	
		—		78	Punch motor	
		—		79	Punch motor	
	IT	SD8	75	1	IT gate solenoid	
③	ADU	M6	80	1	Forward rotation (7145: 230mm/sec, 7235: 180mm/sec, 7228/7222: 140mm/sec)	
		M6		2	Forward rotation (600mm/sec)	
		M6		3	Reverse rotation (7145: 230mm/sec, 7235: 180mm/sec, 7228/7222: 140mm/sec)	
		M6		4	Reverse rotation (600mm/sec)	
		SD5	83	—	ADU gate solenoid	

Classification	Symbol	Code	Multi code	Name	Cannot be set or changed in the field
Others	—	90	—	PM counter clear	
	—	91	0	Process counter clear (prohibited in the field)	X
	—		1	Drum counter clear (prohibited in the field)	X
	—	92	—	PRMB (Parameter memory board) initialization (Process initial set/prohibited in the field)	X
	—	93	—	Initial settings	
	—	95	—	Automatic adjustment of L detection reference value (prohibited in the field)	X
	—	96	—	Process delivery completing setting (prohibited in the field)	X
	—	97	—	Light distribution check	
	—	98	—	After completion of process shipment, temporary initialization of the PRMB (Parameter memory board)	X
	—	119	—	Network initialization	
	—	121	—	Initialize fax-related nonvolatile memory	
	—	197	—	E-RDH (DRAM) capacity display	
	—	198	—	E-RDH (DRAM) capacity check	
	—	999	—	Checking of status control board (prohibited in the field)	X

10. OTHER ADJUSTMENTS

⚠Caution:

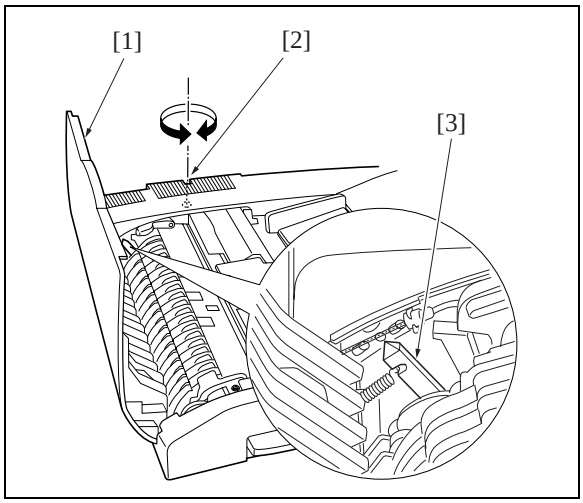
- **Be sure the power cord has been unplugged from the wall outlet.**

10.1 RADF Height Adjustment

A. Procedure

1. Close the RADF.

2. Open the open/close cover [1], then turn the RADF height adjustment screw [2] until the RADF height adjust pointer [3] comes to center of the scale divisions.

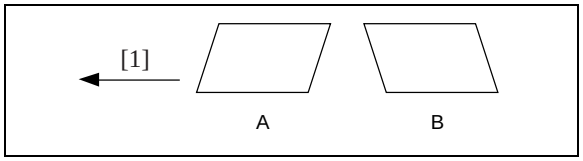


10.2 RADF Distortion Adjustment

Adjust the amount of distortion of a copy in the following procedures.

A. Procedure

1. Set a A3 paper on the tray of the main body.
2. Set the ADF adjustment chart on the RADF, then make a copy.
3. Check the amount of distortion in the copy.
   Standard value: ± 0.3% less.

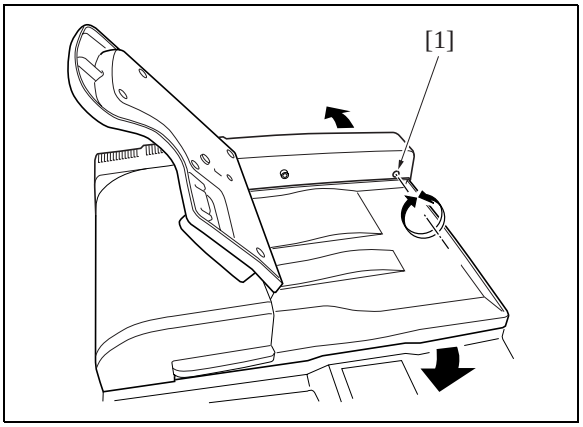


[1] Paper feed direction

4. When the distortion is larger than the tolerance, adjust it using the skew adjustment screw [1].

- A: Turn the dskew adjustment screw [1] clockwise.
- B: Turn the skew adjustment screw [1] counterclockwise.

5. Repeat above steps 2 to 4 until the standard value for distortion is met.



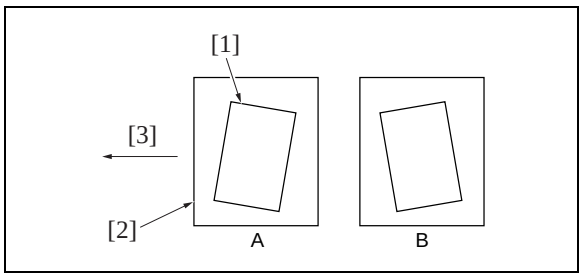
10.3 RADF Original Skew Adjustment (Front Side)

When the front side of the originals are fed being skewed, adjust the registration pully bracket.

A. Procedure

1. In the single sided → single sided copy mode, set the adjustment chart to the RADF for copying.

2. Check the original skew pattern.
Standard value: Within ± 0.5%

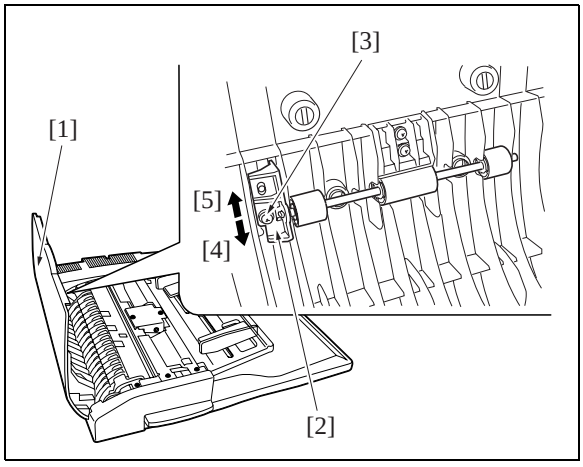


[1] Image
[2] Paper
[3] Paper feed direction

3. When the skew is not up to the standard, open the open/close cover [1], loosen the screw [3] and adjust the position of the registration pulley bracket[2].

- A: Move the registration pully bracket [2] down [4].
- B: Move the registration pully bracket [2] up [5].

4. Repeat above steps 1 to 3 until the standard value for the skewed original is within standard value.



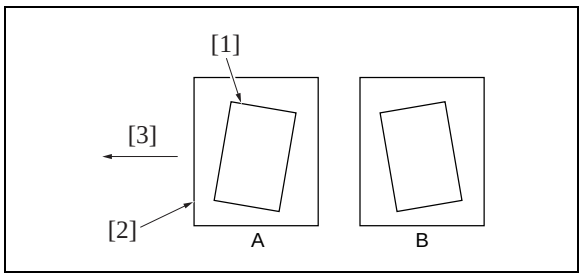
10.4 RADF Original Skew Adjustment (Back Side)

When the back side of the original is supplied on a skew, adjust the clearance of the guide plate.

A. Procedure

1. In the double sided → single sided copy mode, set the adjustment chart to the RADF for copying.

2. Check the original skew pattern.
Standard value: Within ± 0.5%



[1] Image
[2] Paper
[3] Paper feed direction

3. When the skew is not up to the standards, open the open/close cover [1] and remove the 2 covers [2].

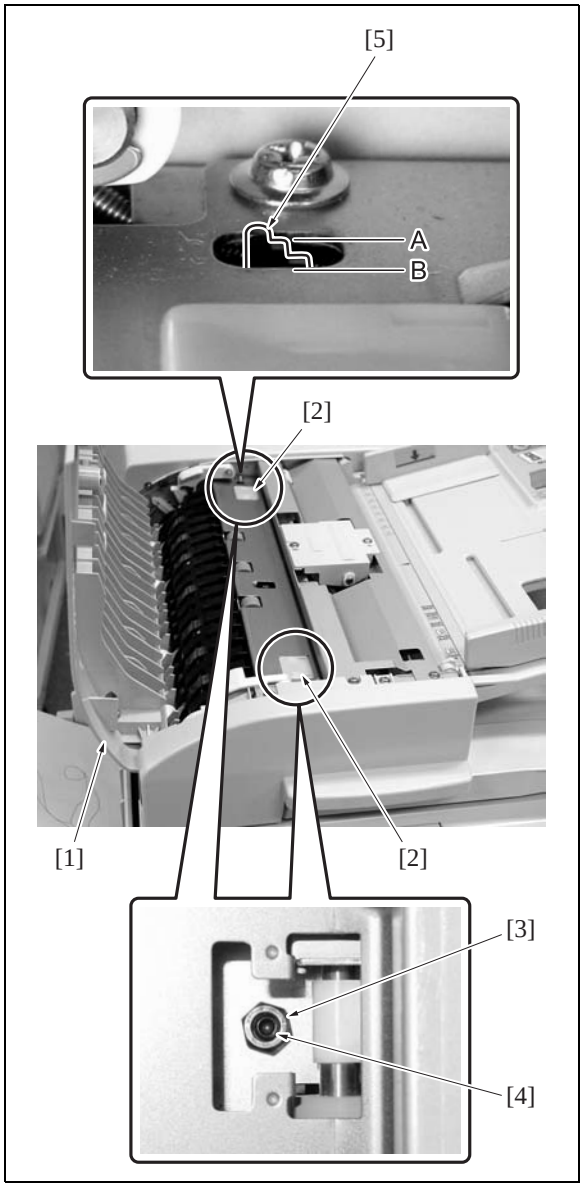
4. Loosen the hexagon nut [3], and rotate the set screw[4] to adjust the clearance of the guide plate.

- A: Loosen the hexagon nut [3] at the rear and rotate the set screw [4] clockwise.
- B: Loosen the hexagon nut [3] at the front and rotate the set screw [4] clockwise.

Note:

- Since there is the possibility of jamming, be sure not make the clearance of the guide plate narrower than the standard value. (Be sure not to tighten the hexagon nut [3].)
- The reference value of the clearance of the guide plate should be determined based on the position where the difference in level [A] of the second stage of the clearance reference block [5] becomes flush with the metal frame surface [B].

5. Repeat the steps 1 to 4 until the original skew gets within the standard value.



10.5 DB-411 Paper-Centering Adjustment

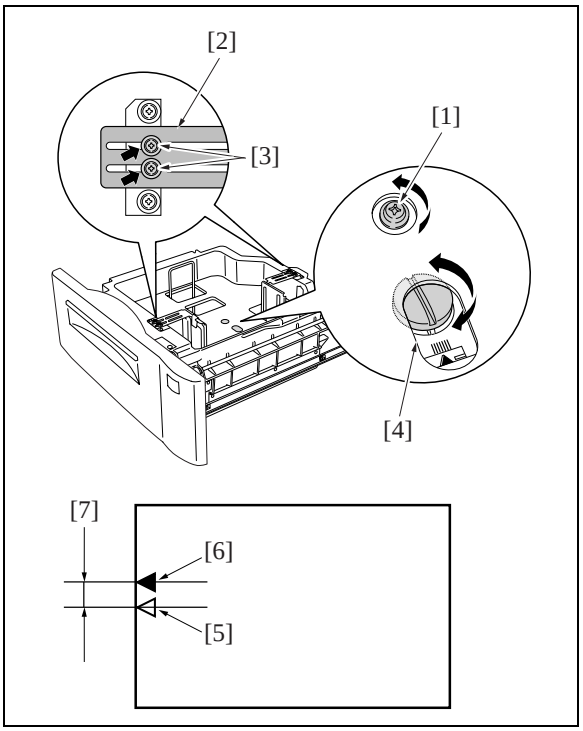
Make a copy of the test chart, then perform necessary adjustment until the standard value for the paper centering is fit.

A. Procedure

1. Loosen a screw [1] on the side guide situated at bottom of the paper feed tray. And also loosen the 2 screws [3] on the reinforcing plates (front/back) [2] situated at top of the tray.

2. Rotate the adjusting cam [4], move the side guide back and forth and adjust it so that the centering of the image center [6] to the paper center [5] becomes within the specified value (within 3mm).

3. When the adjustment is complete, tighten the screws provided for the side guide and reinforcing plates.



Note:

- If paper miscentering occurs, move the side guide forwards and backwards, and adjust the gap for the paper in use to between 1.0 and 1.5mm.
  (The gap must be set so that the tray meets both the lower limit position and the upper limit position.)

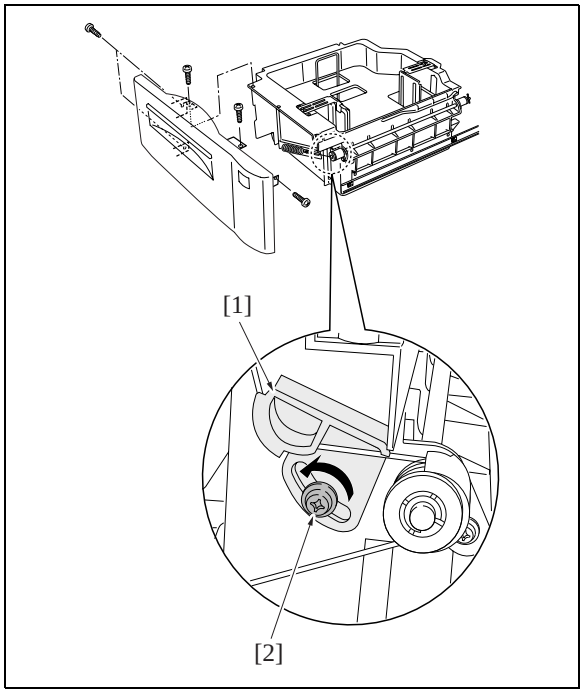
10.6 DB-411 Tray Tilt Adjustment

Normal paper feed can't be expected if the tray is tilted. In such case, adjust the tray and paper feed roller shaft so that they may be parallel in each other. Whenever the wire is replaced, this adjustment must be implemented.

A. Procedure

1. Remove the front cover of the tray.

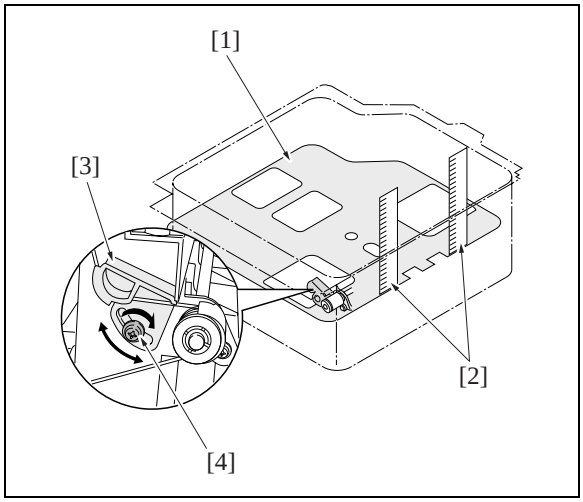
2. Loosen a screw [2] of the wire adjustment part [1] situated in front side of the tray.



3. Position in front and in rear the 2 metal scales [2] in the tray [1] as shown in the drawing.

4. Move the wire adjustment part [3] until the distance from top of the side plate to the tray [1] top face is equal in both the front and back sides.

5. When the adjustment is complete, tighten the screw [4] for the wire adjustment part [3].

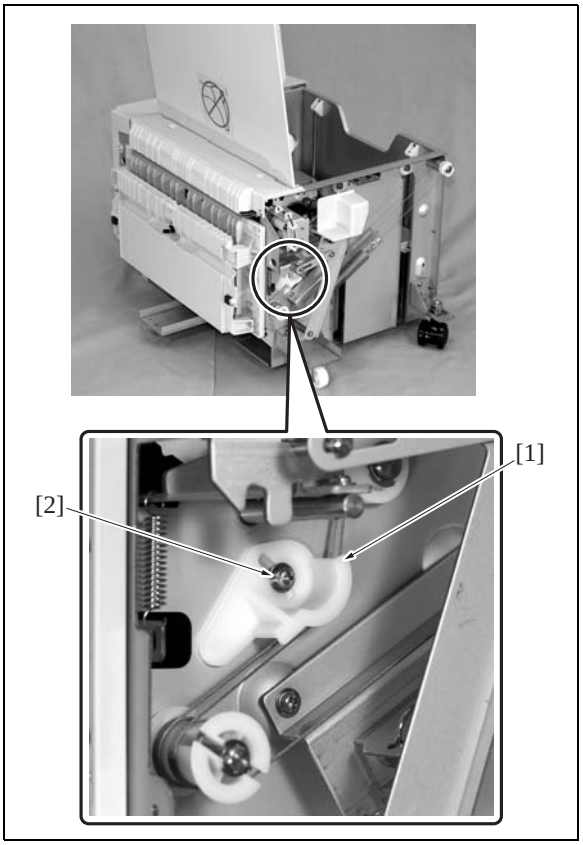


10.7 LT Tray Tilt Adjustment

Normal paper feed can't be expected if the tray is tilted. In such case, adjust the tray and paper feed roller shaft so that they may be parallel in each other. Whenever the wire is replaced, this adjustment must be implemented.

A. Procedure

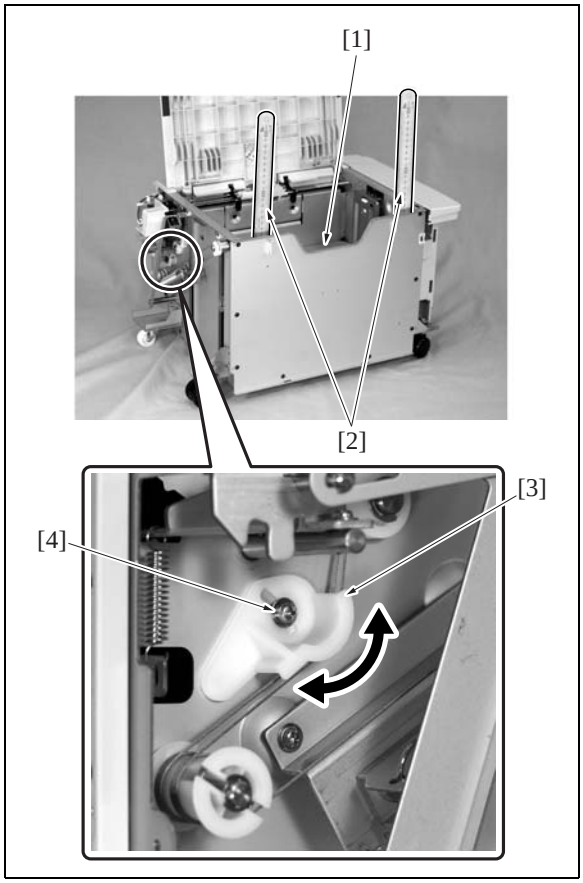
1. Remove the LT from the main body.
2. Open the top cover and remove the right cover and the front cover.
3. Loosen a screw [2] of the wire adjustment part [1] situated in front.



4. Position in front and in rear the 2 metal scales [2] in the tray [1] as shown in the drawing.

5. Move the wire adjustment part [3] until the distance from top of the side plate to the tray [1] top face is equal in both the front and back sides.

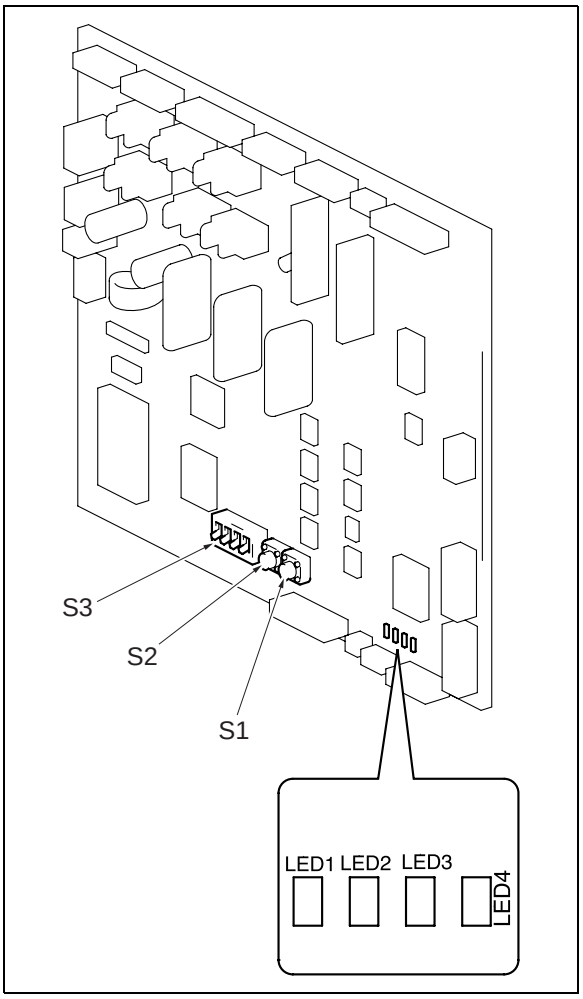
6. When the adjustment is complete, tighten the screw [4] for the wire adjustment part [3].



10.8 FS-113 Output Check Mode

A. Switches on PWB

S1	Used to run the Test Mode operation.
S2	
S3	DIP switch used to set the Test Mode operation.
LED1~4	Turn ON or OFF, or blink to indicate a specific condition during Test Mode operations.



B. Test Mode

(1) Test Mode Setting Procedure

a. Procedure

1. Turn OFF SW2 (Sub power switch) of the copier.

2. Flip keys of the DIP switch into the ON or OFF position as necessary. (See Table below.)

3. Turn ON SW2 (Sub power switch) of the copier.

4. This sets the Finisher into the corresponding Test Mode operation.

b. Resetting Procedure

• Flip all keys of the DIP switch to their respective initial positions (OFF positions) and turn OFF, then ON, SW2 (Sub power switch) of the copier.

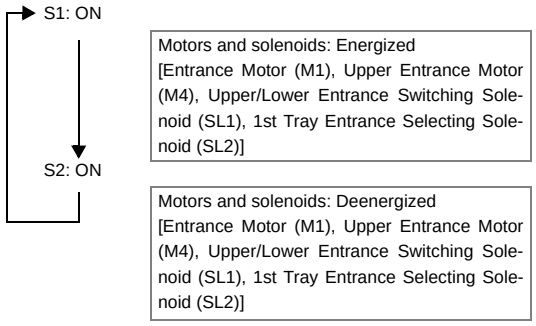
(2) Test Mode Operations

Test Mode Operation	DIP Switch (S3)				LED			
	1	2	3	4	1	2	3	4
Online					○	○	○	●
1st Tray exit	ON				●	○	○	○
Elevator Tray exit		ON			○	●	○	○
Finisher Tray exit	ON	ON			●	●	○	○
Shifting operation	ON		ON		●	○	●	○
Aligning Plate operation		ON	ON		○	●	●	○
Stapling Unit CD movement	ON	ON	ON		●	●	●	○
Exit Roller/ Rolls spacing				ON	○	○	○	●
Storage Roller/ Rolls spacing	ON			ON	●	○	○	●
Elevator Tray operation		ON		ON	○	●	○	●
Hole Punch operation	ON	ON		ON	●	●	○	●
Hole position selection			ON	ON	○	○	●	●
Sensor test	ON		ON	ON	Indicates sensor state			

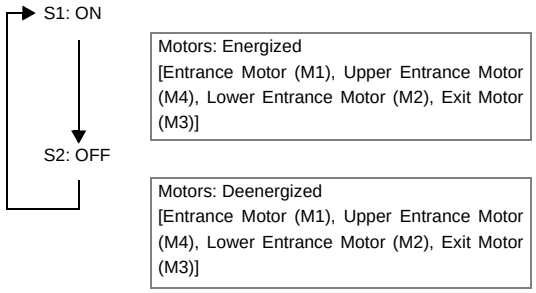
●: Blinking ○: OFF

(3) Operation in Each Test Mode Operation

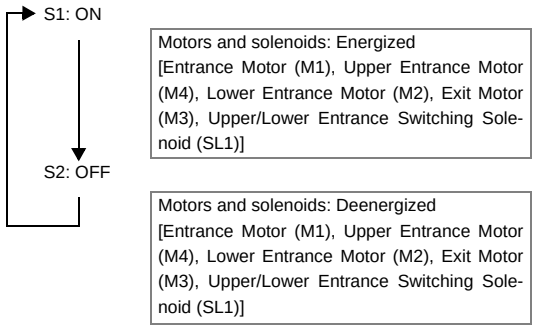
a. 1st Tray Exit



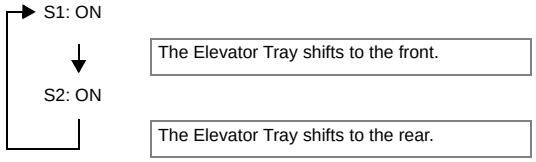
b. Elevator Tray Exit



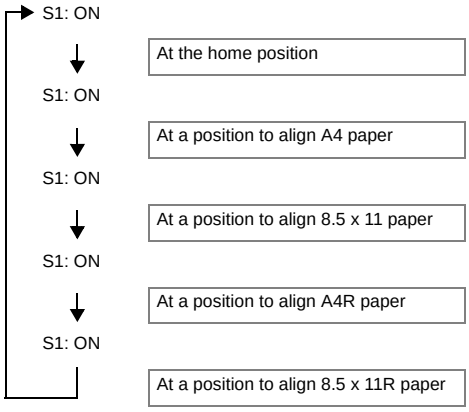
c. Finisher Tray Exit



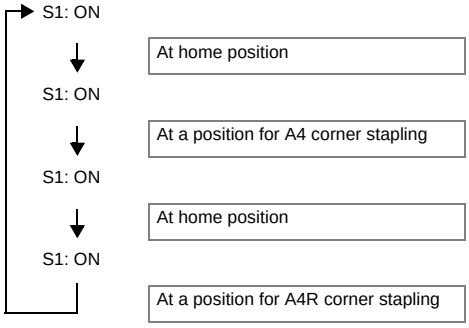
d. Shifting Operation



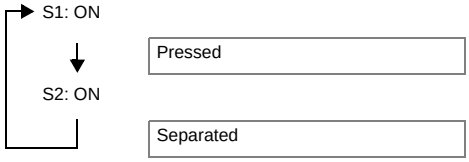
e. Aligning Plate Operation



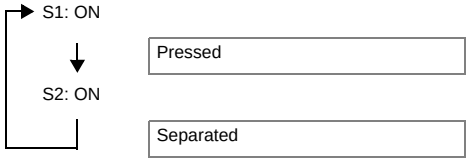
f. Stapling Unit CD Movement



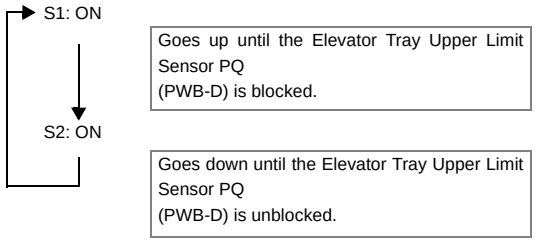
g. Exit Roller/Rolls Spacing



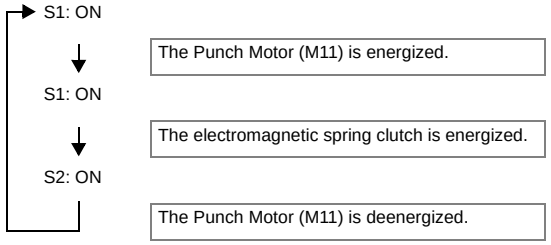
h. Storage Roller/Rolls Spacing



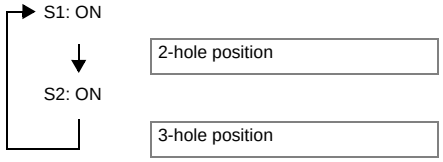
i. Elevator Tray Operation



j. Hole Punch Operation



k. Hole Position Selection U.S.A. and Canada



l. Sensor Test

Sensor	State	LED			
		1	2	3	4
Elevator Tray Upper Limit Sensor PQ (PWB-D)	Unblocked	○	○	○	●
Storage Sensor (PC3)	Blocked	○	○	●	○
Lower Entrance Sensor (PC2)	Blocked	○	●	○	○
Upper Entrance Sensor (PC4)	Blocked	●	○	○	○

●: ON ○: OFF

10.9 Lengthwise Position Adjustment of Punch Hole of FS-113

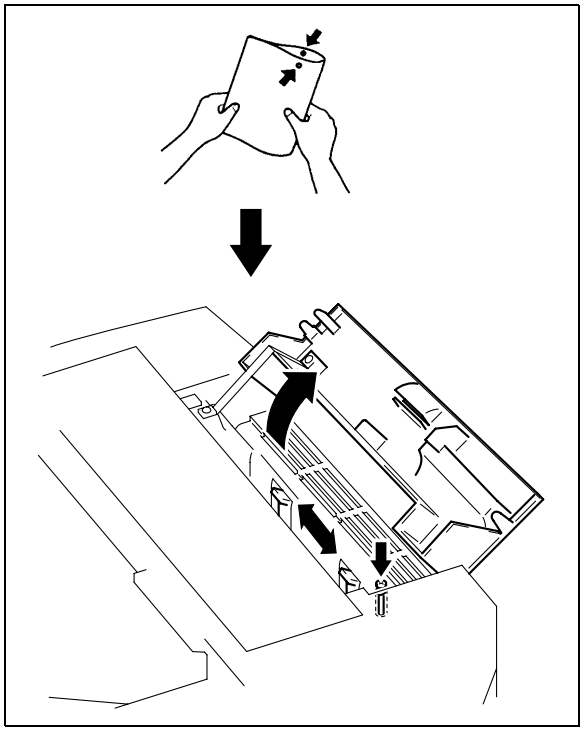
A. Procedure

1. Set the copier into the Hole Punch mode and make a 1-sided copy from a 1-sided original.

2. Fold the copy in half and check to see if the holes are aligned
(deviation should be within 2mm).

3. If the holes are misaligned, loosen the screw that secure the Punch Unit and slide the Punch Unit as necessary.

4. Make a copy again and check for correct hole positions.



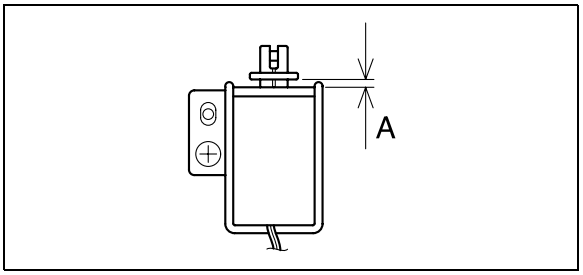
10.10 Adjustment of FS-113 Solenoids

A. Adjustment of the Upper/Lower Entrance Switching Solenoid (SL1)

(1) Procedure

1. Loosen one screw that secures the solenoid in position.

2. Move the solenoid up or down and, when dimension A measures 4.4mm, tighten the screw.

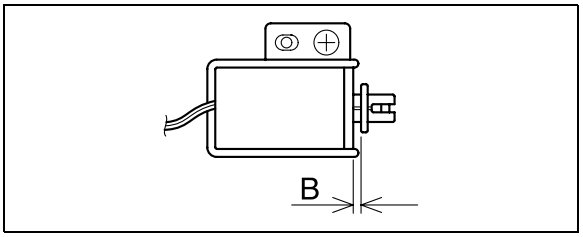


B. Adjustment of the 1st Tray Entrance Selecting Solenoid (SL2)

(1) Procedure

1. Loosen one screw that secures the solenoid in position.

2. Move the solenoid to the right or left and, when dimension B measures 3.6mm, tighten the screw.



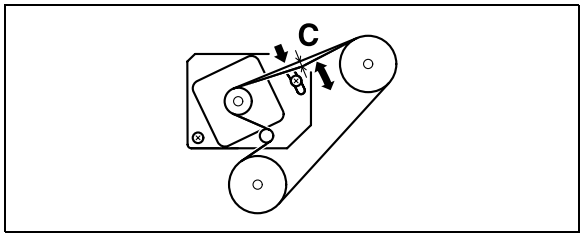
10.11 FS-113 Timing Belt Tension Adjustment

A. Adjustment of the Upper Entrance Motor (M4) Timing Belt

(1) Procedure

1. Loosen 2 screws.

2. Use a spring balance to apply pressure at C and tighten the 2 screws at the position where the tension becomes 200 ± 100gf when the belt deflects 4mm.

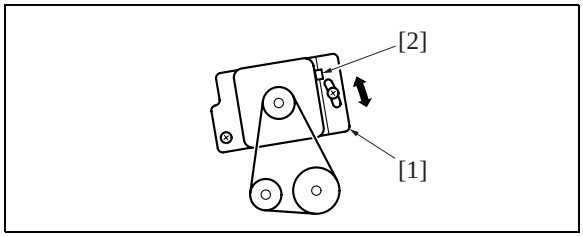


B. Adjustment of the Lower Entrance Motor (M2) Timing Belt

(1) Procedure

1. Loosen 2 screws.

2. Use a spring balance to pull the square hole [2] given in the lower entrance motor mounting bracket with a force of 800 ± 50gf and tighten the 2 screws.

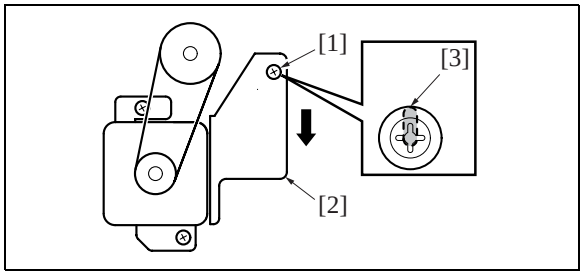


C. Adjustment of the Exit Motor (M3) Timing Belt

(1) Procedure

1. Loosen 3 screws.

2. Tighten the 3 screws at the position [3] where the external form of the screw [1] coincides with that of the oblong hole in the exit motor mounting bracket [3].

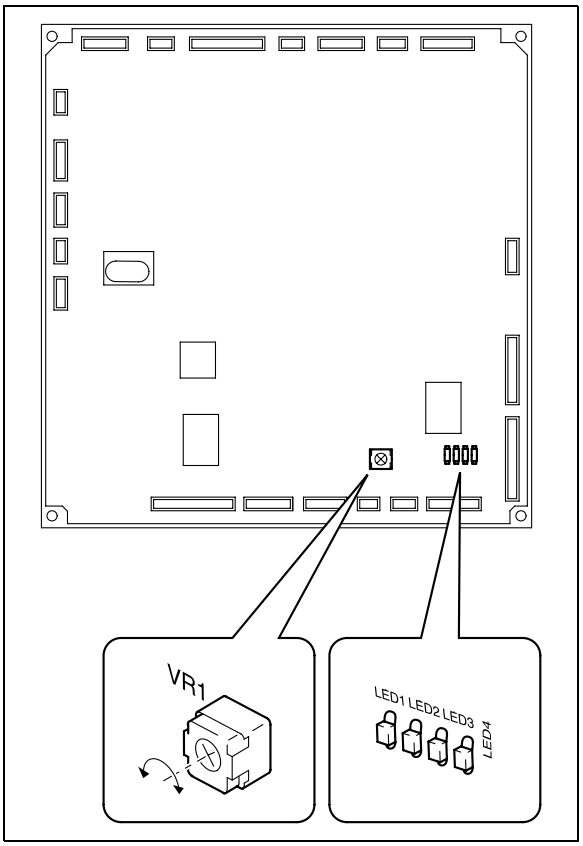


10.12 FS-113 Adjustment of the Elevator Tray Upper Limit Sensor

- This adjustment must be made when the Control Board (PWB-A) or the Elevate Tray Top Face Sensor (PWB-C, D) is replaced with a new one.

A. Procedure

1. Set up the sensor test mode.
2. Turn VR1 on PWB-A fully counterclockwise.
3. Using a sheet of paper, block the Elevator Tray Upper Limit Sensor LED (PWB-C).
4. Check that LED4 on PWB-A turns OFF. If it stays ON, slowly turn VR1 clockwise and stop turning it as soon as the LED turns OFF.

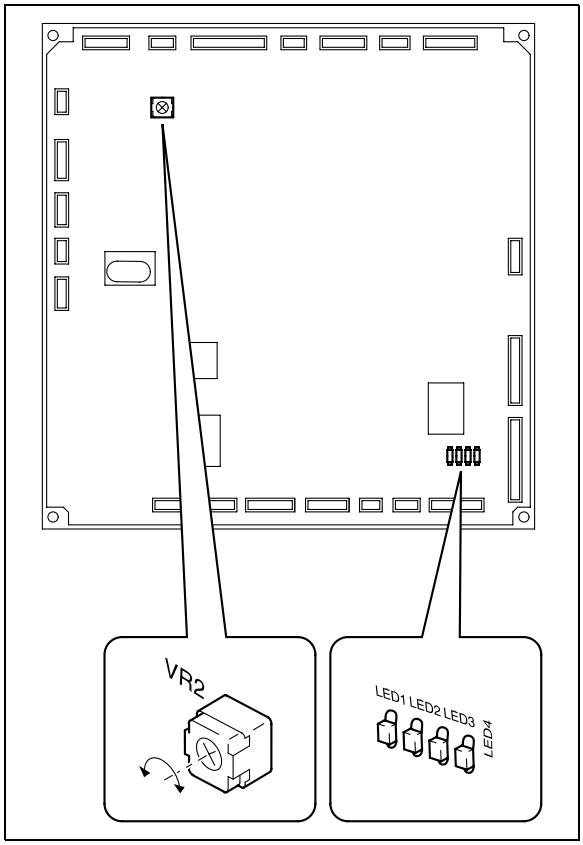


10.13 Adjustment of FS-113 Elevator Tray Overload Detection Level

- This adjustment must be made when the Control Board (PWB-A) or the Elevator Motor (M7) is replaced with a new one.

A. Procedure

1. Set the “Elevator Tray operation” function of the Test Mode.
2. Turn VR2 on PWB-A fully counterclockwise.
3. Using a sheet of paper, block the Elevator Tray Upper Limit Sensor LED (PWB-C). Then using the “Elevator Tray operation” function, lower the Elevator Tray.
4. Place 1,500 sheets of A3 (20lbs) or 3,000 sheets of A4 (20lbs) paper on the Elevator Tray.
5. Using the “Elevator Tray operation” function, raise the Elevator Tray.
6. While the Elevator Tray is going up, turn VR2 on PWB-A clockwise and, when LED3 on PWB-A turns from a steady light to off, stop turning VR2.



⚠ 10.14 Staple Position Adjustment of FS-114

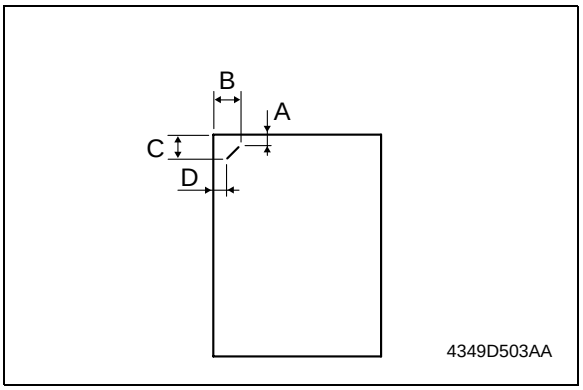
- It is replaced when the stapler is replaced or when the staple position is not correct.

A. Procedure

1. Set the staple mode and make a copy.
2. Check the staple position of the paper.

- 1-Point Tilted Staple
  Paper Width 279 to 297mm: 45° tilt

Measurement position	Specification	Adjustment range
A, D	4.4 ± 3mm	—
B, C	12.1 ± 4mm	+1mm to -2mm

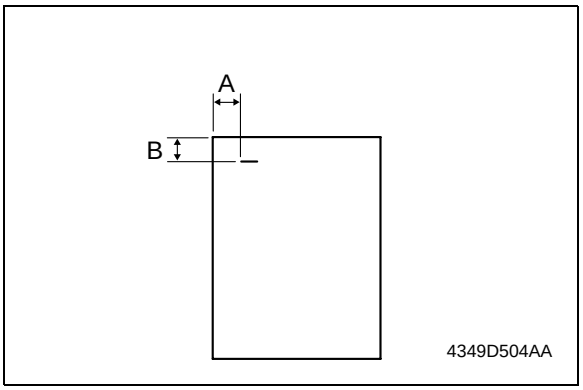


B5, B4: 30° tilt

Measurement position	Specification	Adjustment range
A	4.9 ± 3mm	—
B	16.2 ± 4mm	+1mm to -2mm
C	10.1 ± 4mm	+1mm to -2mm
D	6.5 ± 3mm	—

- 1-Point Parallel Staple
  Paper Width 182 to 216mm

Measurement position	Specification	Adjustment range
A	4.5 ± 3mm	—
B	6.0 ± 4mm	+1mm to -2mm



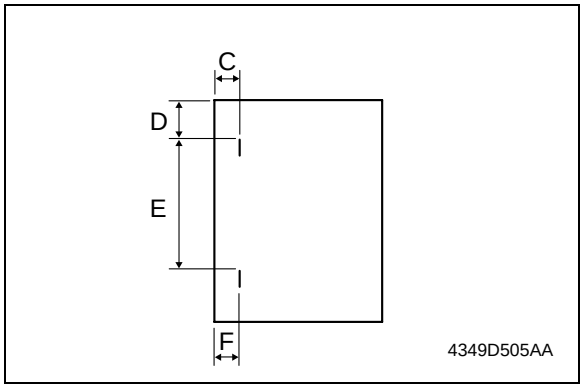
• 2-Point Staple

Measurement position	Specification	Adjustment range
C, F	6.0 ± 4mm	+1mm to -2mm
D	Y ± 4mm	—
E	X ± 4mm	—

Y = (paper width-x-11) / 2

X = A3, A4: 137
B4, B5: 114
A4R: 190
B5R: 162

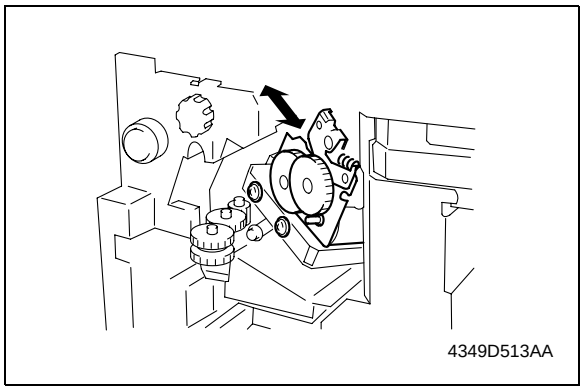
Substitute above into the equation.



3. If the staple position is misaligned, remove one screw and the cover.

4. Loosen two adjustment screws and move the Stapler Unit in the direction of the arrow to make the adjustment.

5. Make another copy and check the staple position.



⚠1 10.15 Adjustment of the Installation Position of the Shutter Drive Gear of FS-114

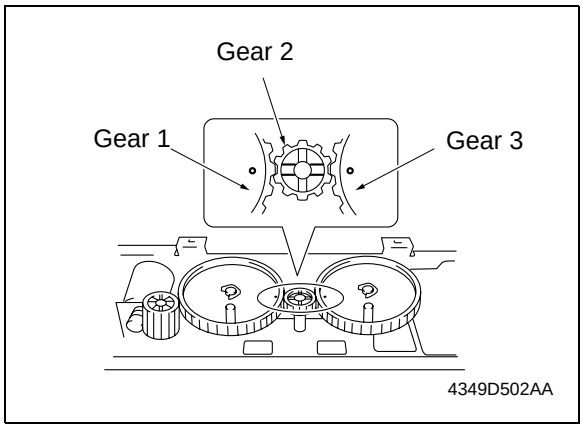
• When the gear/1, 2 or 3 is replaced, or the gear/1, 2 or 3 is removed.

A. Procedure

1. Set three gears.

Note:

• Set the gears so that the marks on Gears 1 and 3 are aligned with the rib of Gear 2 as shown on the right.



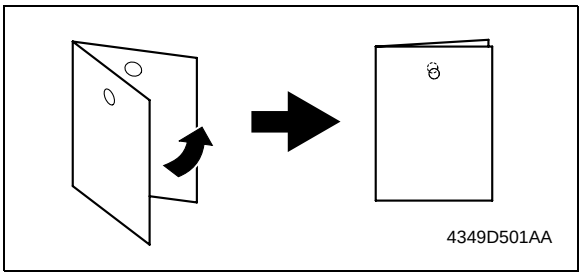
⚠ 10.16 Punch Hole Deviance Adjustment of FS-114 (PK-114)

- When the punch kit is replaced or removed.

A. Procedure

1. Set the copier into the Hole Punch mode and make a 1-sided copy from a 1-sided original.

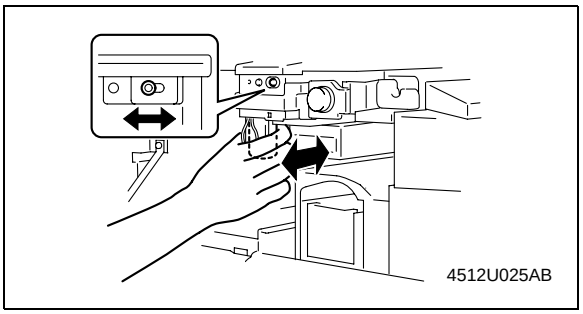
2. Fold the output paper in half and check whether the punch hole positions are aligned.
Specification: Within 2mm



3. If the punch hole position is misaligned, remove two screws and the cover.

4. Loosen one adjustment screw and move the Punch Unit forward or backward to make the adjustment.

5. Make another copy and check the punch hole position.



⚠1 10.17 Fold Angle Adjustment of SK-114

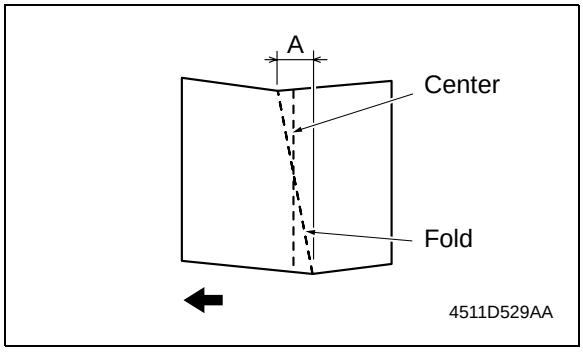
- It is performed when the fold unit is replaced or a tilt occurs in paper folding.

A. Procedure

1. Enter the Crease mode and make a copy. (A3 Size)

2. Fold the output paper and half and check whether section A of the paper is aligned.
Specification: 0 ± 1.5mm

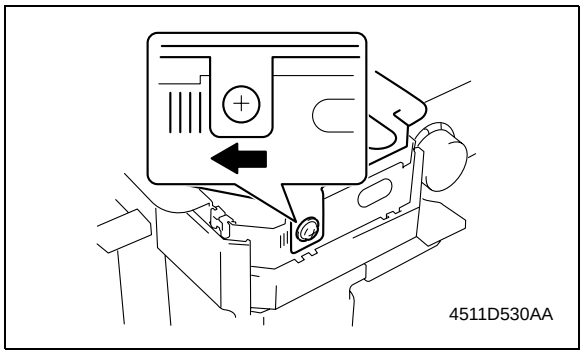
3. If the fold position is slanted as shown on the left, make the following adjustment.



4. Open the Front Door, loosen one adjustment screw, and move the Crease Unit to the left to make the adjustment.

* If the fold position is slanted opposite to the figure of step 3, move the Crease Unit to the right to make the adjustment.

5. Make another copy and check the fold position.



⚠ 10.18 Staple Angle Adjustment of SK-114

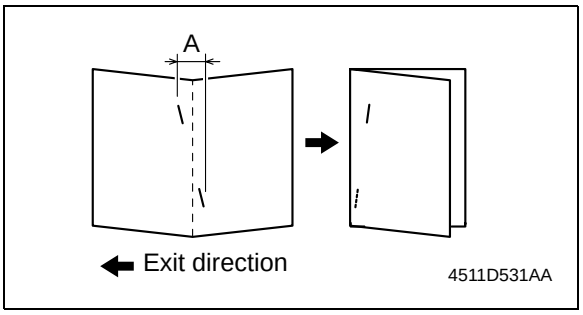
- It is performed when the staple unit 1 or 2 is replaced or a tilt occurs in center staple position.

A. Procedure

1. Set five A4 originals in the ADF.

2. Set to 2-point Staple and Crease mode and make a copy. Check whether the staple position is aligned correctly.
Specification: 0 ± 1.5mm

3. If the staple position is slanted as shown on the figure, make the following adjustment.

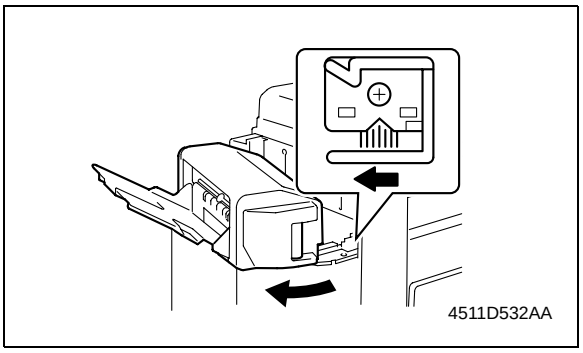


4. Release the lock release lever of the Saddle Unit.

5. Loosen one adjustment screw and move the lock lever to the left to make the adjustment.

* If the staple position is slanted opposite to the figure of step 3, move the lock lever to the right to make the adjustment.

6. Make another copy and check the staple position.



II ISW

1. DESCRIPTION OF THE ISW ③

③ The ISW (In-System Writer) is an operation by which the control program, that is stored in the flash ROM incorporated into a variety of control boards in the digital copier, is rewritten with the board integrated into the main body of the copier. Executing the ISW allows you to renew the version of the control program without changing the board or to install the latest program while changing the board.

As a tool to execute the ISW, you can use the [ISW Trns (PC software)] by which rewriting is made with a personal computer (PC) connected to the digital copier.

This tools allow direct rewriting of the control program in the flash ROM included in the copier main body by connecting the ISW connector of the copier main body.

③ The method of carrying out the necessary setup work on the main body for executing ISW is described here. For the operation of the “ISW Trns,” see the “ISW (In-System Writer) Service Manual.”

Note:

③

- When using the USB, be sure to turn on the USB radio button in the [Setting (S)] - [Communication setting (C)] of the ISWTrns and press the OK button.
- For the ISW method of this machine, only the ISW Trns is available.

2. SETUP

A. Board used for the ISW

The following boards are available for rewriting a program using the ISW in this machine.

- SCB (System control board)
- CB (Main body control board)
- FNSCB (FNS control board) : FS-112
- ③ PWB-A FN (Main control board) : FS-114
- FAX control
- For the printer controller, see the Service Manual of IP.

For boards other than the above, the ROM is required to be changed.

B. Data flow

There are 2 types of data flows for the ISW as shown below:

- ③ PC→SCB→CB→FNSCB/PWB-A FN
- PC→SCB→FAX

Important:

- When the overall control program has not been written into the SCB (System control board), it is not possible to rewrite programs for other boards.

C. Checking before transfer

Before executing the ISW, be sure to check to see if the transfer case and the transfer mode to be used are correct.

(1) When the overall control program has not been installed

When the overall control program has not been installed, the LCD screen is not displayed and data cannot be written in the 25 mode.

Transfer case: When the SCB (System control board) is being replaced.

Transfer mode: When the power is on. (When the data LED indicator lamp is on → The ISW is waiting for transfer. When the lamp is flashing → The ISW is receiving data.)

(2) When the overall control program has been installed

When the overall control program has been installed, it is possible to write data in the 25 mode.

Transfer case: Version up, when boards other than the SCB (System control board) are being replaced.

Transfer mode:25 mode

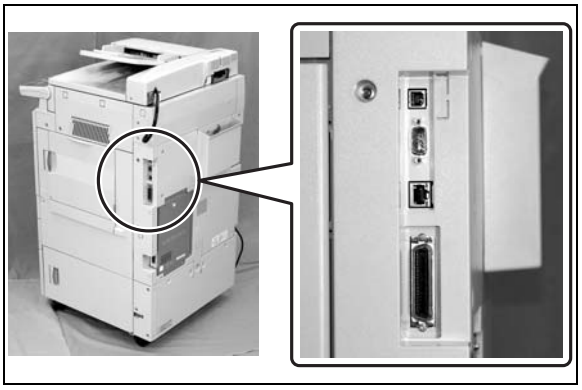
D. ISW connectors

The ISW connectors are provided on the right side of the main body, and each of the connectors is covered with a cap or seal. Be sure to remove this cap or seal while in use.

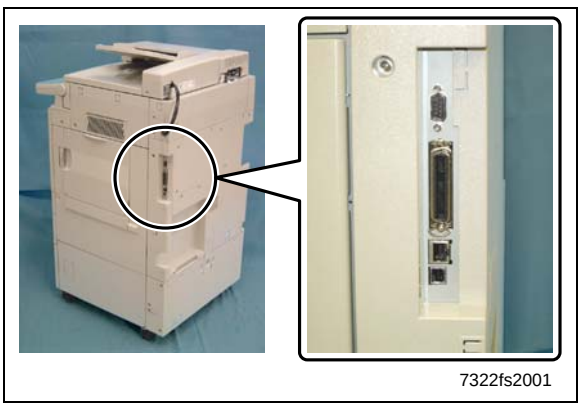
The following two types of IF are available:

- USB (B type)
- IEEE1284 (Nibble/ECP/compatible mode)

△3 In the case of the 7145



△3 In the case of the 7235/7228/7222



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E. Preparation of the copying machine for ISW transfer

△3 When the copier and the PC are USB connected for the first time, it is necessary to install the USB driver into the PC. (It is not required, however, to install the USB driver on and after the second connection.)

For details of the installation procedure of the USB driver, see “3. USB ISW.”

Before operating the ISW, maintain the copier in ISW mode.

(1) When the overall control program has been installed

△3 **a. Procedure**

1. Enter the 25 mode.

2. “25 mode menu screen”
Press the [10.ISW] key.

3. “ISW menu screen”
Select the ROM where the ROM data to be rewritten.
[START] key is displayed.

4. “Program rewrite screen”
Press the [START] key.

Note:

- This step is to be used only when carrying out the ISW to make a USB connection. When a connection method other than the above is used, proceed to Step 6.

5. “Program rewrite screen”
After confirming that a message “Reading program data” is to be displayed, disconnect once the USB cable that has been connected to the copier and then reconnect it again.

Note:

- The step is to be used only when carrying out the ISW to make a USB connection. When a connection method other than the above is used, proceed to Step 6.

6. “Program rewrite screen”
Pressing [START] key, cause the machine to be data waiting condition.

Note:

- When the ISW is carried out to make a USB connection, this step should be omitted. ③

7. Execute the operation according to the procedures specified in the "ISW (In-System Writer) Service Manual."

8. In about 60 seconds after the data transfer from the PC has been completed, the ISW data is written from the system memory in the SCB (System control board) into the flash ROM in which data is stored.

Note: ③

- When Steps 4 and 5 are not carried out to make a USB connection, the USB port is not opened and the data cannot be sent from the PC. When the normal operation of the ISW is not available, start all over again from Step 1 after turning the SW1 (main switch) OFF and ON.
- Be sure not turn off the power to the copying machine while the ISW data is being written.

9. When data has been written into the flash ROM, the system is restarted to display the "25 mode menu screen."

(2) When the overall control program is not installed

1. Turn on the SW1 (Main power switch) and the SW2 (Sub-power switch).

2. Check to see if the data LED indicator lamp is on. In this condition, the ISW is placed in waiting for transfer.
Check to see if the data LED is flashing while the ISW data is being received.

3. The procedure after this is the same as the steps above for "(1) When the overall control program has been installed".

F. Data transfer error

When a transfer error occurs, an error mark is displayed in the message area on the LCD display.
If an error occurs, see the section "Error handling" in the separate "ISW Service Manual" and perform the appropriate countermeasures. After the countermeasures are completed, perform the re-write operation again from the beginning.

(1) ISW for image control/FNS control/FAX control

a. Procedure ③

1. Enter the 25 mode.

2. "25 mode menu screen"
Press the [10. ISW] key.

3. "ISW menu screen"
Select a ROM the data of which is rewritten. The [START] key is displayed.

4. "Program rewrite screen"
Press the [START] key.

Note:

- This step is to be used only when carrying out the ISW to make a USB connection. When a connection method other than the above is used, proceed to Step 6.

5. "Program rewrite screen"
After confirming that a message "Reading program data" is to be displayed, connect the USB cable.

Note:

- The step is to be used only when carrying out the ISW to make a USB connection. When a connection method other than the above is used, proceed to Step 6.

6. "Program rewrite screen"
Press the [START] key to put the ISW into the state of waiting for transfer.

Note:

- When the ISW is carried out to make a USB connection, this step should be omitted.

7. Execute the operation according to the procedure given in the ISW (In-system Writer) Service Manual.
8. In about 100 seconds after completion of the transfer of data from the PC, the ISW data is written into the flash ROM in the ISW-intended board.

Note:

- When Steps 4 and 5 are not carried out to make a USB connection, the USB port is not opened and the data cannot be sent from the PC. When the normal operation of the ISW is not available, start all over again from Step 1 after turning the SW1 (main switch) OFF and ON.
- Do not turn off the power to the copying machine while the ISW data is being written.

9. When the data has been written into the flash ROM, a message “Completed successfully” is displayed.
10. Press the [RETURN] key twice to return to the “25 mode menu screen”.

⚠3. USB ISW

The ISW RNs tool for transfer can be installed in the PC by using the setup disk. However, the USB driver (KCAUSB.SYS) is required to be installed by the plug-and-play of the Windows after connecting the PC and the copier with the USB cable.
The installation of the USB driver is required only when the PC is connected to the copier for the first time. (No installation is required on and after the second connection.)

A. Preparation for the installation of the USB driver

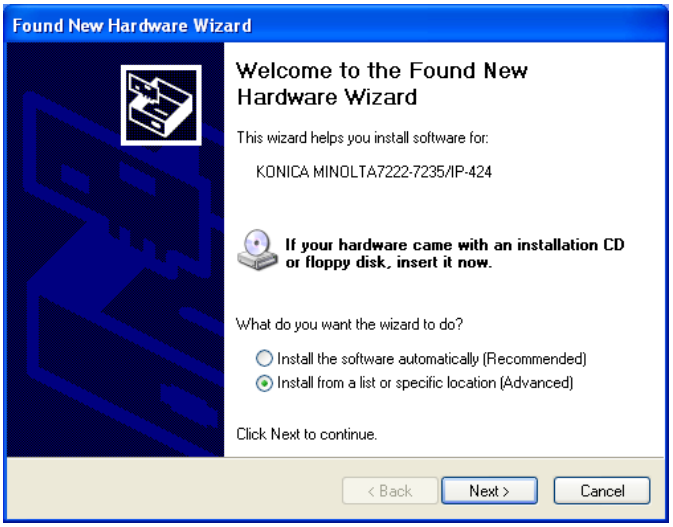
1. Enter the 25 mode.
2. "25 mode menu screen"
   Press the [10.ISW] key.
3. "ISW menu screen"
   Select the ROM where the ROM data to be rewritten.
   [START] key is displayed.
4. "Program rewrite screen"
   Pressing [START] key causes the machine to be data waiting condition.
5. Connect the USB connector.

- The "Welcome to the Found New Hardware Wizard" display is shown.
  (The succeeding steps of the "B. USB driver installation procedure (Windows 2000/XP)").

B. USB driver installation procedure (Windows 2000/XP)

When the PC and the copier are connected with the USB cable, the USB driver is automatically installed by the plug-and-play.
However, this may cause the USB driver (USBPRINT.SYS) of the Windows to be installed. Accordingly, the USB driver should be set by following the procedure given below:

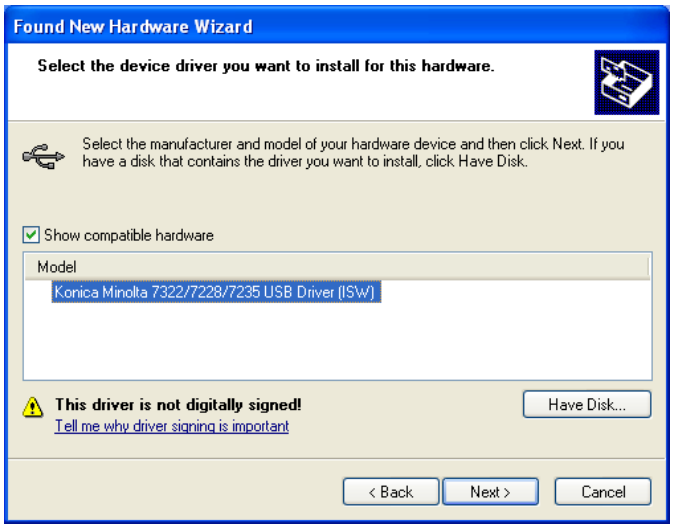
1. Select "Install from a list or specific location [Advanced]" in the display shown below, and then click [Next].



2. Select "Display a list of the known drivers for this device so that I can choose a specific driver" in the "Install Hardware Device Drivers" screen, and then click [Next].

△3 *3.* Select the USB driver in the driver selection screen, and then click [Next] for installation.

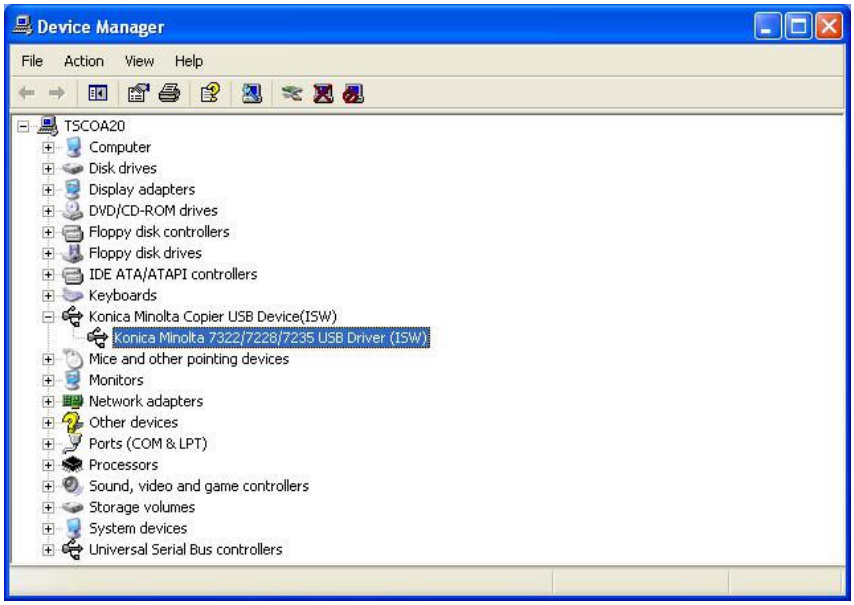
- In the case of the 7145 : Konica Minolta 7145 USB Driver (ISW)
- In the case of the 7235/7228/7222 : Konica Minolta 7222/7228/7235 USB Driver (ISW)



4. When the “Completing the Upgrade Device Driver Wizard” screen is displayed, click [Finish] to finish the installation.

5. In the “Device Manager” screen, check to see if the installation of the USB driver is carried out correctly.

- In the case of the 7145 : Konica Minolta 7145 USB Driver (ISW)
- In the case of the 7235/7228/7222 : Konica Minolta 7222/7228/7235 USB Driver (ISW)



III SERVICE

1. SERVICE SCHEDULE

1.1 Service Schedule

△3 **1.1.1 7145**

	Service item	x 10,000 copies															
		12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	
Main body	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 240,000 copies		●		●		●		●		●		●		●		
	Periodic check (II) Every 360,000 copies			●			●			●			●				
	Periodic check (III) Every 480,000 copies				●				●				●				
	Periodic check (IV) Every 720,000 copies						●						●				
DF-318	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 960,000 copies								●								
	Periodic check (II) Every 1,200,000 copies										●						
DB-411	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 240,000 copies		●		●		●		●		●		●		●		
DB-211	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 480,000 copies				●				●				●				

	Service item	x 10,000 copies															
		12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	
LT-203	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 240,000 copies		●		●		●		●		●		●		●		
FS-112	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 600,000 copies					●					●						
FS-113+RU-101	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
FS-114/PK-114 SK-114/BK-114	Maintenance Every 120,000 copies	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

△3 **1.1.2 7235**

	Service item	x 10,000 copies												
		10	20	30	40	50	60	70	80	90	100	110	120	
Main body	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 200,000 copies		●		●		●		●		●			
	Periodic check (II) Every 300,000 copies			●			●			●				
	Periodic check (III) Every 400,000 copies				●				●					
	Periodic check (IV) Every 600,000 copies						●							
DF-320	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 1,000,000 copies										●			
DB-411	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 200,000 copies		●		●		●		●		●			

	Service item	x 10,000 copies												
		10	20	30	40	50	60	70	80	90	100	110	120	
DB-211	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 400,000 copies				●				●					
LT-203	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
	Periodic check (I) Every 400,000 copies				●				●					
FS-113+RU-101	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		
FS-114/PK-114 SK-114/BK-114	Maintenance Every 100,000 copies	●	●	●	●	●	●	●	●	●	●	●		

③ 1.1.3 7228/7222

	Service item	x 10,000 copies								
		10	20	30	40	50	60	70	80	
Main body	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
	Periodic check (I) Every 200,000 copies		●		●		●			
	Periodic check (II) Every 300,000 copies			●			●			
	Periodic check (III) Every 400,000 copies				●					
	Periodic check (IV) Every 600,000 copies						●			
DF-320	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
DB-411	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
	Periodic check (I) Every 200,000 copies		●		●		●			

△3

	Service item	x 10,000 copies								
		10	20	30	40	50	60	70	80	
DB-211	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
	Periodic check (I) Every 400,000 copies				●					
LT-203	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
	Periodic check (I) Every 400,000 copies				●					
FS-113+RU-101	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		
FS-114/PK-114 SK-114/BK-114	Maintenance Every 100,000 copies	●	●	●	●	●	●	●		

1.2 Maintenance Items

⚠3 1.2.1 7145

Every 120,000 copies/prints

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Image check			●			
		(2) Exterior			●			
2	Fixing unit	(1) Removal of fixing unit						
3	Main body	(1) Suction filter/A	1				●	
		(2) Filter cover assembly	1				●	
		(3) Cooling fan/1 (FM4) Cooling fan/2 (FM7) Inlet filter Developing suction/F, /R		●	●			Blower brush
4	Read unit	(1) Platen glass (include the slit glass)		●				Drum cleaner/ Cleaning pad
		(2) No. 1 to No. 3 mirrors		●				Drum cleaner/ Cleaning pad
5	Paper feed unit	(1) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(2) Feed roller		●				Drum cleaner/ Cleaning pad
		(3) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
		(4) Paper dust removing brush		●				Blower brush/ Cleaning pad
6	Bypass feed unit	(1) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
		(2) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(3) Feed roller		●				Drum cleaner/ Cleaning pad
7	Fixing unit	(1) Fixing claw		●				Drum cleaner/ Cleaning pad
		(2) Fixing sensor		●				Drum cleaner/ Cleaning pad
		(3) Fixing thermostat		●				Drum cleaner/ Cleaning pad
		(4) Fixing heat roller	1				●	
		(5) Fixing press roller	1				●	
		(6) Heat insulating sleeve/A	2			●	●	Solvest 240 or Multemp FF-RM
		(7) Heat insulating sleeve/B	1				●	
		(8) Fixing idling gear/B	1	●			●	Drum cleaner/ Cleaning pad
		(9) Install of fixing unit						

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
8	Final check	(1) Loading of toner cartridge			●			
		(2) Check of W.U.T			●			
		(3) Check of image adjustment			●			
		(4) Check of copy samples			●			
		(5) 25 mode PM counter resetting			●			
		(6) Peripheral and exterior of the machine			●			Drum cleaner/ Cleaning pad

Note:

- The inlet filters for the FM4/FM7 may get soiled depending on the location in which the machine is placed. Be sure to clean it when the filter is found clogged with dust while in inspection.
  When cleaning is not made properly, toner packing may result due to a temperature rise inside the machine.

⚠3 1.2.2 7235/7228/7222

Every 100,000 copies/prints

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Image check			●			
		(2) Exterior			●			
2	Main body	(1) Suction filter/A	1				●	
		(2) Filter cover assembly	1				●	
		(3) Cooling fan/1 (FM4) Inlet filter		●	●			Blower brush
		(4) Developing suction/F, /R		●				
3	Read unit	(1) Platen glass (include the slit glass)		●				Drum cleaner/ Cleaning pad
		(2) No. 1 to No. 3 mirrors		●				Drum cleaner/ Cleaning pad
4	Paper feed unit	(1) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(2) Feed roller		●				Drum cleaner/ Cleaning pad
		(3) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
		(4) Paper dust removing brush		●				Blower brush/ Cleaning pad
5	Bypass feed unit	(1) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
		(2) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(3) Feed roller		●				Drum cleaner/ Cleaning pad

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
6	Final check	(1) Loading of toner cartridge			●			
		(2) Check of W.U.T			●			
		(3) Check of image adjustment			●			
		(4) Check of copy samples			●			
		(5) 25 mode PM counter resetting			●			
		(6) Peripheral and exterior of the machine			●			Drum cleaner/ Cleaning pad

Note:
- The inlet filters for the FM4 may get soiled depending on the location in which the machine is placed. Be sure to clean it when the filter is found clogged with dust while in inspection.
  When cleaning is not made properly, toner packing may result due to a temperature rise inside the machine.

△3 1.2.3 DF-318/320

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	Paper feed section	(1) Original registration sensor		●				Blower brush
		(2) Original conveyance sensor		●				Blower brush
		(3) Original size sensor/1, /2		●				Blower brush
		(4) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(5) Feed roller		●				Drum cleaner/ Cleaning pad
		(6) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
		(7) Read roller		●				Water/ Cleaning pad **Note:** • Do not use alcohol.
		(8) Paper dust removing brush		●				Blower brush
3	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.4 DB-211/411

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	Paper feed section	(1) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(2) Feed roller		●				Drum cleaner/ Cleaning pad
		(3) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
3	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.5 LT-203

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	Paper feed section	(1) Paper feed roller		●				Drum cleaner/ Cleaning pad
		(2) Feed roller		●				Drum cleaner/ Cleaning pad
		(3) Double feed prevention roller		●				Drum cleaner/ Cleaning pad
3	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.6 FS-112

Every 120,000 copies/prints (7145 only)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	Conveyance section	(1) Conveyance drive roller/A		●				Drum cleaner/ Cleaning pad
		(2) Paper exit drive roller		●				Drum cleaner/ Cleaning pad
3	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.7 FS-113/RU-101

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	FS-113	(1) Each of conveyance rollers		●				Drum cleaner/ Cleaning pad
		(2) Paddle		●				Drum cleaner/ Cleaning pad
		(3) Punch scraps box section		●				Cleaning pad
3	RU-101	(1) Each of conveyance rollers		●				
		(2) Exterior		●				
4	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.8 FS-114

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Preparations	(1) Paper through check			●			
2	Conveyance section	(2) Each of conveyance rollers		●				Drum cleaner/ Cleaning pad
3	Alignment section	(1) Paddle		●				Drum cleaner/ Cleaning pad
4	Final check	(1) Paper through check			●			
		(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.9 PK-114

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Conveyance section	(1) Each of conveyance rollers		●				Drum cleaner/ Cleaning pad
2	Punch scraps box	(2) Cleaning the punch scraps box		●				

⚠3 1.2.10 SK-114

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Conveyance section	(1) Each of conveyance rollers		●				Drum cleaner/ Cleaning pad
2	Exterior section	(2) Exterior cleaning		●				Drum cleaner/ Cleaning pad

⚠3 1.2.11 BK-114

Every 120,000 copies/prints (7145)

Every 100,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Tray	(1) Tray stack surface		●				Drum cleaner/ Cleaning pad

1.3 Periodic Check Items

③ 1.3.1 7145

A. Periodic check (I) (Every 240,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Drum unit	(1) Drum	1				●	Setting powder
		(2) Cleaning blade assembly 26TA-209*	1				●	
		(3) 25 mode or 36 mode Photosensitive counter reset			●			
2	Charging corona unit	(1) Charging corona wire		●				Cotton swab
		(2) Changing control plate		●				Cleaning pad
3	Transfer/ separation corona unit	(1) Discharge wire		●				Cotton swab (2 pcs.: 1 for each of transfer and separation)
4	Develop-ing unit	(1) Developer Developing unit installing	1				●	
		(2) 36 mode L detection adjustment			●			
5	Main body	(1) Ozone filter 40LA1017*	1				●	
6	Fixing unit	(1) Fixing cleaner assembly 40LA-540*	1				●	
		(2) Fixing claw 26NA5427*	6				●	
		(3) Fixing bearing /U 26NA5371*	2				●	
		(4) Fixing bearing /L 26NA5359*	2				●	
7	Final check	(1) 25 mode or 36 mode Fixing counter reset			●			
		(2) 36 mode LD1 offset adjustment			●			
		(3) 36 mode LD2 offset adjustment			●			
		(4) Check of image adjustment			●			

B. Periodic check (II) (Every 360,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Bypass feed (Paper feed section)	(1) Double feed prevention roller 40AA-406*	1				●	Actual durable count : 100,000
		(2) Paper feed roller 26NA-428*	1				●	Actual durable count : 100,000
		(3) Feed roller 40AA-425*	1				●	Actual durable count : 100,000

C. Periodic check (III) (Every 480,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Main body paper feed unit	(1) Paper feed rubber 40LA4009*	2				●	Actual durable count : 200,000
		(2) Feed rubber 26NA4011*	2				●	Actual durable count : 200,000
		(3) Double feed prevention rubber 26NA4012*	2				●	Actual durable count : 200,000
2	Transfer/ separation corona unit	(1) Transfer corona unit 40LA-260*	1				●	
3	Fixing unit	(1) Fixing sensor assembly 40LA-534*	1				●	
		(2) Fuse mounting plate SP00-0110	1				●	
		(3) Fixing heater lamp/1 40LA8302*	1				●	
		(4) Fixing heater lamp/2 40LA8303*	1				●	

D. Periodic check (IV) (Every 720,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Develop-ing unit	(1) Developing unit (Unit without developer) 40LA-300*	1				●	
2	Drum unit	(1) Drum unit (Unit without drum) 40LA-990*	1				●	

⚠3 1.3.2 7235/7228/7222

A. Periodic check (I) (Every 200,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Drum unit	(1) Drum	1				●	Setting powder
		(2) Cleaning blade assembly 26TA-209*	1				●	
		(3) 25 mode or 36 mode Photosensitive counter reset			●			
2	Charging corona unit	(1) Charging corona wire		●				Cotton swab
		(2) Changing control plate		●				Cleaning pad
3	Transfer/ separation corona unit	(1) Discharge wire		●				Cotton swab (2 pcs.: 1 for each of transfer and separation)
4	Develop-ing unit	(1) Developer Developing unit installing	1				●	
		(2) 36 mode L detection adjustment			●			
5	Main body	(1) Ozone filter 40LA1017*	1				●	
6	Fixing unit	(1) Fixing heat roller 26NA5303*	1				●	
		(2) Fixing pressure roller 27LA5304*	1				●	
		(3) Fixing cleaner assembly 27LA-540*	1				●	
		(4) Heat insulating sleeve /A 26NA5372*	2			●	●	Solvest 240 or Multemp FF-RM
		(5) Heat insulating sleeve /B 26NA5373*	1				●	
		(6) Fixing claw 27NA5427*	6				●	
		(7) Fixing bearing /U 26NA5371*	2				●	
		(8) Fixing bearing /L 26NA5359*	2				●	
		(9) Fixing idling gear /B 27NA5394*	1	●			●	Drum cleaner/ Cleaning pad
		(10)Fixing sensor		●				Drum cleaner/ Cleaning pad
		(11)Fixing thermostat		●				Drum cleaner/ Cleaning pad

III SERVICE

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
7	Final check	(1) 25 mode or 36 mode Fixing counter reset			●			
		(2) 36 mode LD1 offset adjustment			●			
		(3) Check of image adjustment			●			

③ B. Periodic check (II) (Every 300,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Bypass feed (Paper feed section)	(1) Double feed prevention roller 40AA-406*	1				●	Actual durable count : 100,000
		(2) Paper feed roller 26NA-428*	1				●	Actual durable count : 100,000
		(3) Feed roller 40AA-425*	1				●	Actual durable count : 100,000

③ C. Periodic check (III) (Every 400,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Main body paper feed unit	(1) Paper feed rubber 40LA4009*	2				●	Actual durable count : 200,000
		(2) Feed rubber 26NA4011*	2				●	Actual durable count : 200,000
		(3) Double feed prevention rubber 26NA4012*	2				●	Actual durable count : 200,000
2	Transfer/ separation corona unit	(1) Transfer corona unit 40LA-260*	1				●	
3	Fixing unit	(1) Fixing sensor assembly 26WA-534*	1				●	
		(2) Fuse mounting plate SP00-0110	1				●	

D. Periodic check (IV) (Every 600,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Develop-ing unit	(1) Developing unit (Unit without developer) 27LA-300∗	1				●	
2	Drum unit	(1) Drum unit (Unit without drum) 27LA-200∗	1				●	

△3 1.3.3 DF-318

A. Periodic check (I) (Every 960,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Feed rubber 12QV4034∗	1				●	Actual durable count : 250,000
		(2) Double feed prevention roller 13GL-405∗	1				●	Actual durable count : 250,000

B. Periodic check (II) (Every 1,200,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Paper feed roller 13GL4011∗	1				●	Actual durable count : 300,000

△3 1.3.4 DF-320

A. Periodic check (I) (Every 1,000,000 copies/prints)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Paper feed roller 13GL4011∗	1				●	
		(2) Feed rubber 12QV4034∗	1				●	
		(3) Double feed prevention roller 13GL-405∗	1				●	

⚠3 1.3.5 DB-211

A. Periodic check (I)

Every 480,000 copies/prints (7145)

Every 400,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Paper feed rubber 40LA4009*	2				●	Actual durable count : 200,000
		(2) Feed rubber 26NA4011*	2				●	Actual durable count : 200,000
		(3) Double feed prevention rubber 26NA4012*	2				●	Actual durable count : 200,000

⚠3 1.3.6 DB-411

A. Periodic check (I)

Every 240,000 copies/prints (7145)

Every 200,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Paper feed rubber 40LA4009*	1				●	Actual durable count : 200,000
		(2) Feed rubber 26NA4011*	1				●	Actual durable count : 200,000
		(3) Double feed prevention rubber 26NA4012*	1				●	Actual durable count : 200,000

⚠3 1.3.7 LT-203

A. Periodic check (I)

Every 240,000 copies/prints (7145)

Every 400,000 copies/prints (7235/7228/7222)

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Paper feed section	(1) Paper feed rubber 40LA4009*	1				●	Actual durable count : 200,000
		(2) Feed rubber 26NA4011*	1				●	Actual durable count : 200,000
		(3) Double feed prevention rubber 26NA4012*	1				●	Actual durable count : 200,000

△3 1.3.8 FS-112

A. Periodic check (I)

Every 600,000 copies/prints

No.	Classification	Service item	Quantity	Implementation classification				Materials•Tools used
				Cleaning	Check	Lubrication	Replacement	
1	Exit section	(1) Paper exit roller /A 13GQ4519*	1				●	Actual durable count : 600,000

⚠3 1.4 Replacement Parts List

No.	Unit	Parts name	Parts No.	Quantity	Actual durable count
01	DC (including changing corona unit)	Drum	—	1	240,000 (7145) 200,000 (7235/7228/7222)
02		Cleaning blade assembly	26TA-209*	1	240,000 (7145) 200,000 (7235/7228/7222)
03		Drum unit	40LA-990* (7145) 27LA-200* (7235/7228/7222)	1	720,000 (7145) 600,000 (7235/7228/7222)
04	Transfer/separation corona	Transfer/separation corona unit	40LA-260*	1	480,000 (7145) 400,000 (7235/7228/7222)
05	Developing unit	Developer	—	1	240,000 (7145) 200,000 (7235/7228/7222)
06		Developing unit	40LA-300* (7145) 27LA-300* (7235/7228/7222)	1	720,000 (7145) 600,000 (7235/7228/7222)
07	Main body	Ozone filter	40LA1017*	1	240,000 (7145) 200,000 (7235/7228/7222)
41		Suction filter /A	40LA-318*	1	120,000 (7145) 100,000 (7235/7228/7222)
42		Filter cover assembly	40LA-314*	1	120,000 (7145) 100,000 (7235/7228/7222)
08	Main body paper feed unit	(Tray 1) Paper feed rubber	40LA4009*	1	200,000
09		(Tray 1) Feed rubber	26NA4011*	1	200,000
10		(Tray 1) Double feed prevention rubber	26NA4012*	1	200,000
11		(Tray 2) Paper feed rubber	40LA4009*	1	200,000
12		(Tray 2) Feed rubber	26NA4011*	1	200,000
13		(Tray 2) Double feed prevention rubber	26NA4012*	1	200,000

△3 No.	Unit	Parts name	Parts No.	Quantity	Actual durable count
14	DB-211/411	(Tray 3) Paper feed rubber	40LA4009*	1	200,000
15		(Tray 3) Feed rubber	26NA4011*	1	200,000
16		(Tray 3) Double feed prevention rubber	26NA4012*	1	200,000
17	DB-211	(Tray 4) Paper feed rubber	40LA4009*	1	200,000
18		(Tray 4) Feed rubber	26NA4011*	1	200,000
19		(Tray 4) Double feed prevention rubber	26NA4012*	1	200,000
20	By-pass feed unit	Double feed prevention roller	40AA-406*	1	100,000
21		Paper feed roller	26NA-428*	1	100,000
22		Feed roller	40AA-425*	1	100,000
23	Fixing unit	Fixing heat roller	40LA5303* (7145) 26NA5303* (7235/7228/7222)	1	120,000 (7145) 200,000 (7235/7228/7222)
24		Fixing pressure roller	40LA5304* (7145) 27LA5304* (7235/7228/7222)	1	120,000 (7145) 200,000 (7235/7228/7222)
25		Fixing cleaner assembly	40LA-540* (7145) 27LA-540* (7235/7228/7222)	1	240,000 (7145) 200,000 (7235/7228/7222)
26		Heat insulating sleeve/A	26NA5372*	2	120,000 (7145) 200,000 (7235/7228/7222)
27		Heat insulating sleeve/B	26NA5373*	1	120,000 (7145) 200,000 (7235/7228/7222)
28		Fixing idling gear/B	40LA5394* (7145) 27LA5394* (7235/7228/7222)	1	120,000 (7145) 200,000 (7235/7228/7222)
30		Fixing claw	26NA5427* (7145) 27LA5427* (7235/7228/7222)	6	240,000 (7145) 200,000 (7235/7228/7222)
31		Fixing bearing/U	26NA5371*	2	240,000 (7145) 200,000 (7235/7228/7222)

No.	Unit	Parts name	Parts No.	Quantity	Actual durable count
32	Fixing unit	Fixing bearing/L	26NA5359*	2	240,000 (7145) 200,000 (7235/7228/7222)
33		Fixing sensor assembly	40LA-534* (7145) 26WA-534* (7235/7228/7222)	1	480,000 (7145) 400,000 (7235/7228/7222)
34		Fuse holder	SP00-0110	1	480,000 (7145) 400,000 (7235/7228/7222)
35		Fixing heater lamp/1 (7145)	40LA8302*	1	480,000
36		Fixing heater lamp/2 (7145)	40LA8303*	1	480,000
37	DF-318/320	Paper feed roller	13GL4011*	1	300,000
38		Feed rubber	12QV4034*	1	250,000
39		Double feed prevention roller	13GL-405*	1	250,000
40	FS-112	Paper exit roller/A (7145)	13GQ4519*	1	600,000
43	LT-203	Paper feed rubber	40LA4009*	1	200,000
44		Feed rubber	40LA4011*	1	200,000
45		Double feed prevention rubber	26NA4012*	1	200,000

1.5 Important Maintenance Parts

△3 • The important parts specified by Konica Minolta in order to maintain safety of the products are referred to as “important maintenance parts”. The important maintenance parts for this machine are as described below:

No.	Unit	Parts name	Parts No.	Quantity
1	Fixing unit	Fuse mounting plate assembly	SP00-0110	1

Note:

• “SP” is indicated in front of the parts number of the important maintenance part. Exercise care when installing the parts according to “III. Directions for disassembly and assembly” in this manual.

2. 1 PM PARTS KIT

△3 7145

120,000 copies/kit

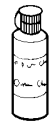
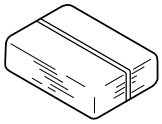
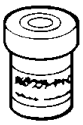
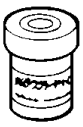
Name	Parts No.	Quantity
Fixing heat roller	40LA5303*	1
Fixing press roller	40LA5304*	1
Heat insulating sleeve/A	26NA5372*	2
Heat insulating sleeve/B	26NA5373*	1
Fixing idling gear/B	40LA5394*	1
Suction filter/A	40LA-318*	1
Filter cover assembly	40LA-314*	1
Dust bag	—	1
Cleaning pad (10 pcs.)	—	1
Cotton swabs (4 pcs.)	—	1

△3 7235/7228/7222

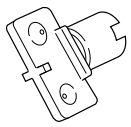
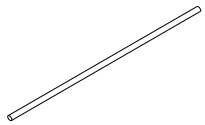
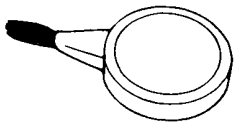
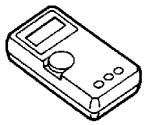
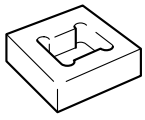
200,000 copies/kit

Name	Parts No.	Quantity
Cleaning blade assembly	26TA-209*	1
Ozone filter	40LA1017*	1
Fixing heat roller	26NA5303*	1
Fixing pressure roller	27LA5304*	1
Fixing cleaner assembly	27LA-540*	1
Heat insulating sleeve/A	26NA5372*	2
Heat insulating sleeve/B	26NA5373*	1
Fixing claw	27LA5427*	6
Fixing bearing/U	26NA5371*	2
Fixing bearing/L	26NA5359*	2
Fixing idling gear /B	27LA5394*	1
Suction filter/A	40LA-318*	2
Filter cover assembly	40LA-314*	2
Dust bag	—	2
Cleaning pad (10 pcs.)	—	2
Cotton swabs (4 pcs.)	—	2

3. SERVICE MATERIALS LIST

Material No.	Name	Shape	Remark
00V-16-0	Drum cleaner		200ml
000V-19-0	Setting powder		25g
000V-18-1	Cleaning pad		10pcs/1pack
⚠3 00GR00260	Multemp FF-RM		25g
⚠3 00GR00210	Solvest 240		Multemp FF-RM recommended

4. CE TOOLS LIST

Tool No.	Name	Shape	Quantity	Remark
26NA21340	Drum rotation material		1	Mounted on the drum unit.
26NAJG011	Mirror positioning jig		2	
00VD-5000	New pyramid chart		1	
⚠3 120A9711*	Adjustment chart		1	For DF adjustment DF-320 is contained in the same package.
⚠3 120A9712*	White chart		1	For DF adjustment DF-320 is contained in the same package.
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1003	Tester		1	
14GS46310	Stapler unit positioning jig		1	For SK-114 staple adjustment

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IV DIAGRAMS

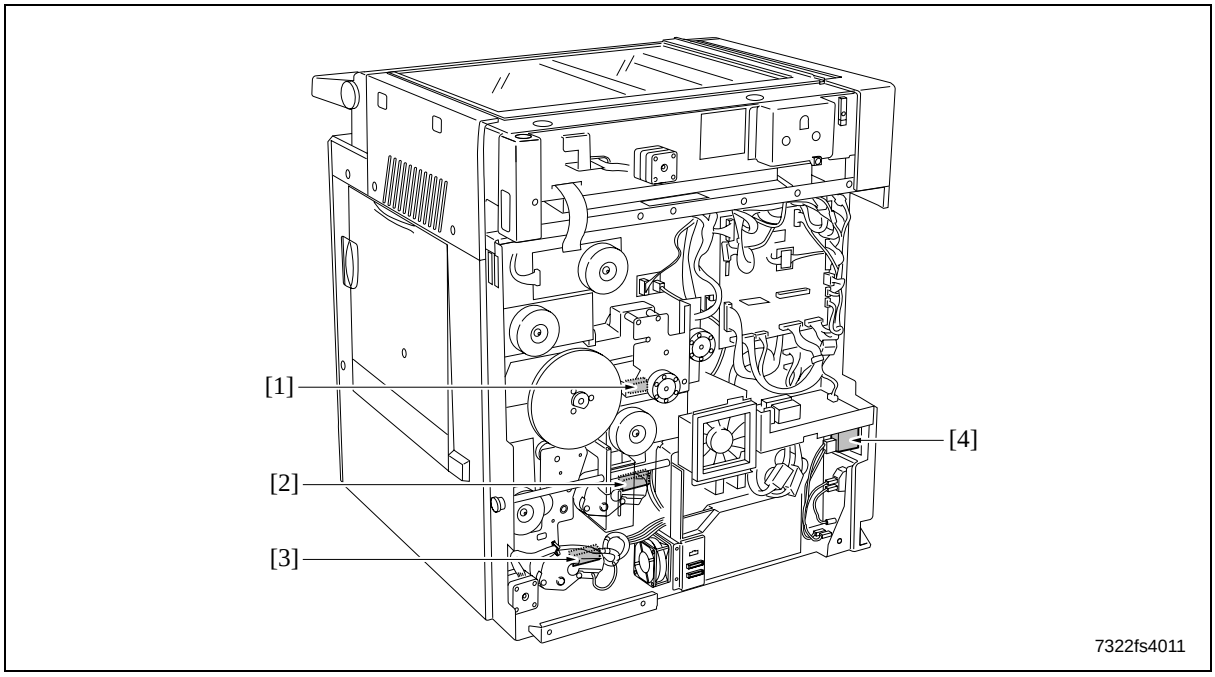
1. PARTS LAYOUT DRAWING

△3 1.1 Main Body Parts Layout Drawing

A. Switches and sensors

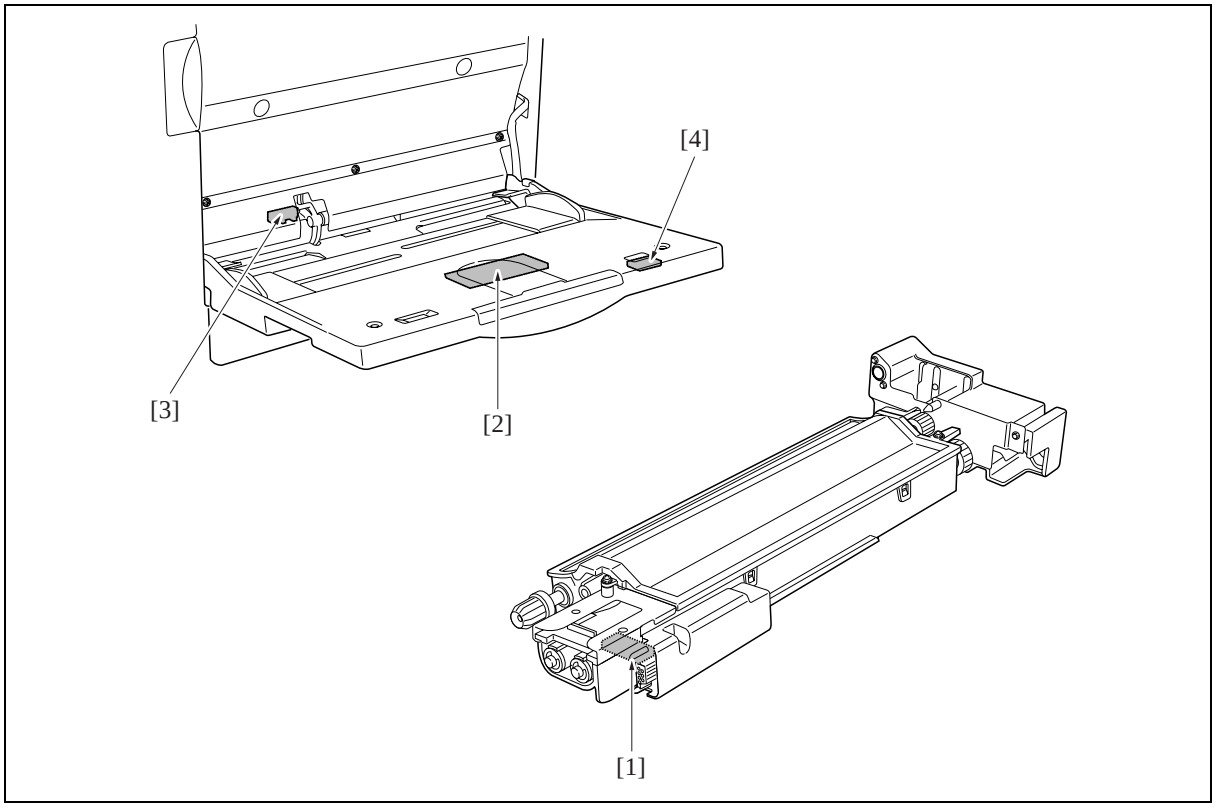
(1) Main body rear side

△3



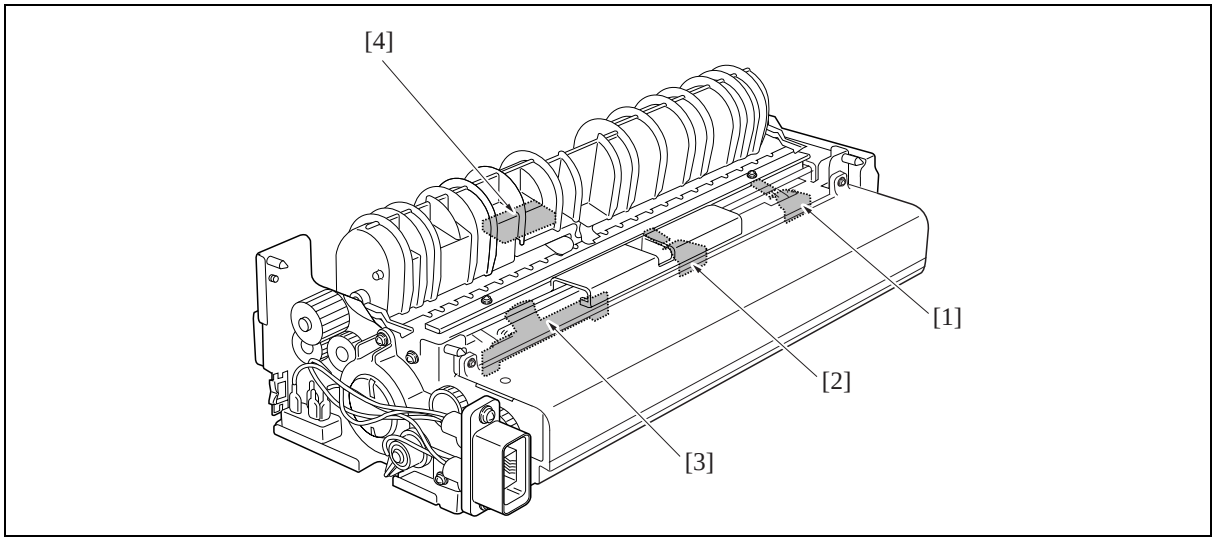
[1] TLD (Toner level sensor)
[2] PS9 (Tray set sensor/U)
[3] PS12 (Tray set sensor/L)
△3 [4] SW1 (Main power switch)

(2) Bypass tray/Developing unit



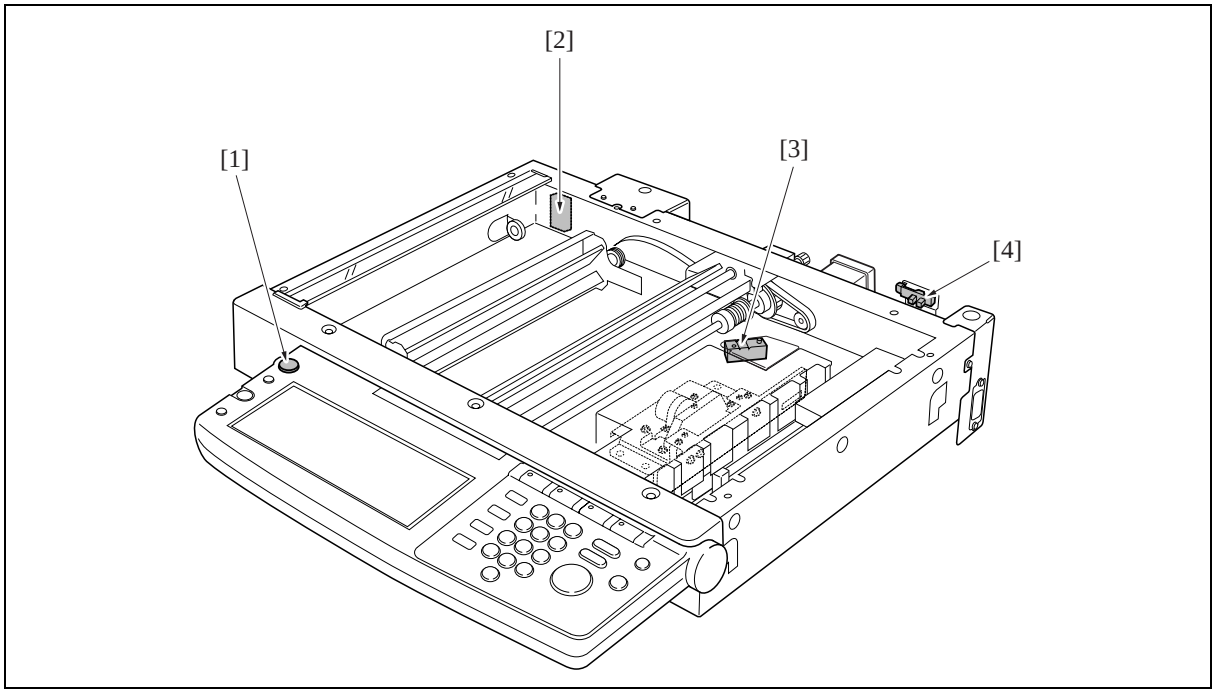
[1] TDS (Toner density sensor)
[2] VR1 (Bypass tray paper size sensor VR)
[3] PS13 (Bypass tray no paper sensor)
[4] PS20 (Bypass tray paper size sensor)

(3) Fixing unit



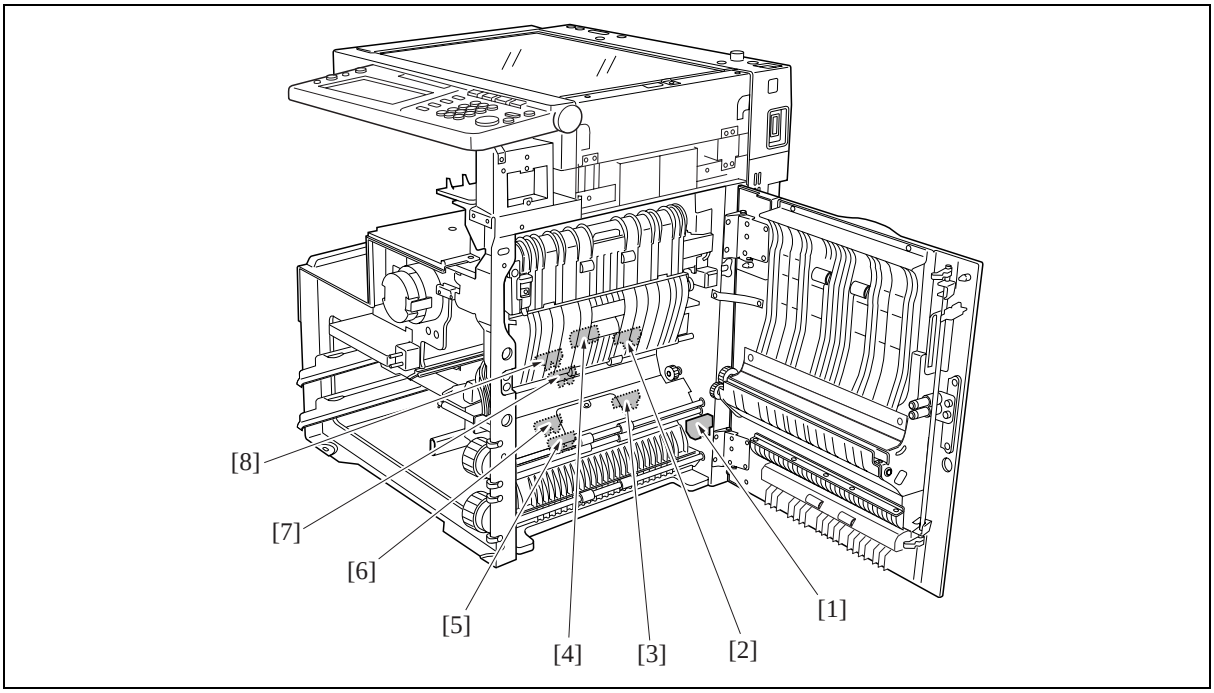
[1] TH2 (Fxing temperature sensor/2)
[2] TH1 (Fxing temperature sensor/1)
[3] TS (Thermostat)
[4] PS2 (Fixing exit sensor)

(4) Scanner section/Operation section



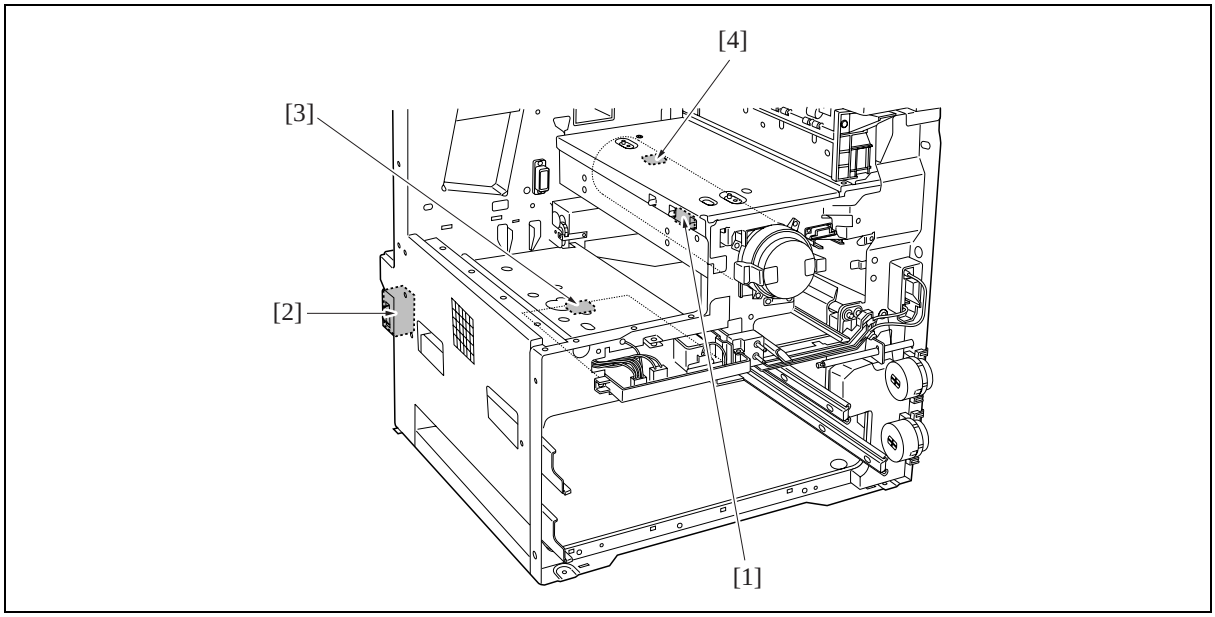
[1] SW2 (Sub power switch)
[2] PS14 (Scanner home position sensor)
[3] PS17 (APS sensor)
[4] PS15 (APS timing sensor)

(5) Main body right side (Paper feed section/ADU)



[1] PS4 (ADU sensor)
[2] PS8 (No paper sensor/U)
[3] PS11 (No paper sensor/L)
[4] PS1 (Registration sensor)
△3 [5] PS22 (Timing sensor/L) (7145/7235/7228 only)
[6] PS10 (Upper limit sensor/L)
△3 [7] PS21 (Timing sensor/U) (7145/7235/7228 only)
[8] PS7 (Upper limit sensor/U)

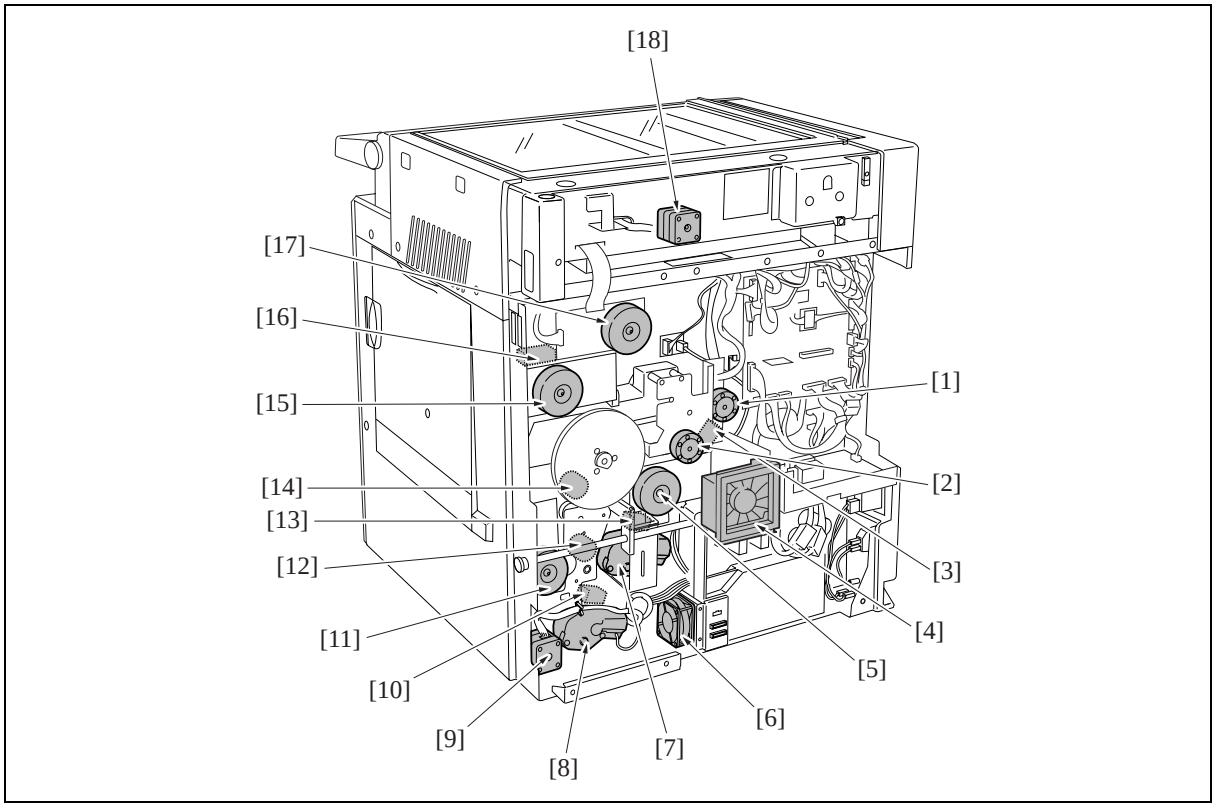
(6) Main body front side/Main body left side



[1] SW3 (Interlock switch)
[2] SW1 (Main power switch)
[3] HUM1 (Humidity sensor)
[4] PS5 (Toner bottle sensor)

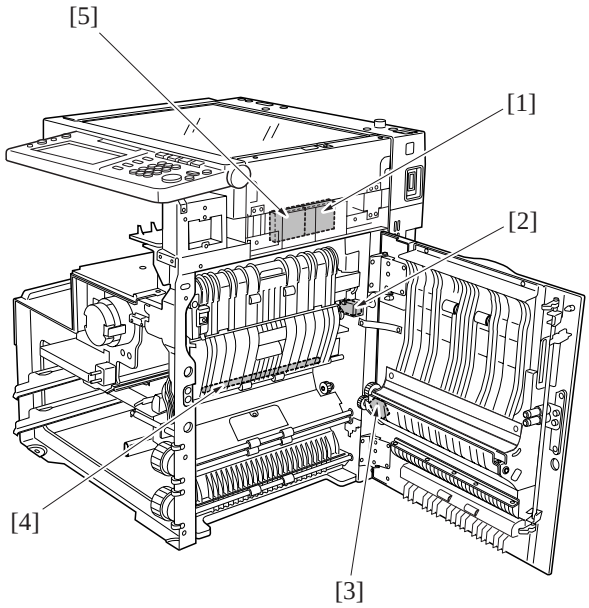
B. Loads

(1) Main body rear side



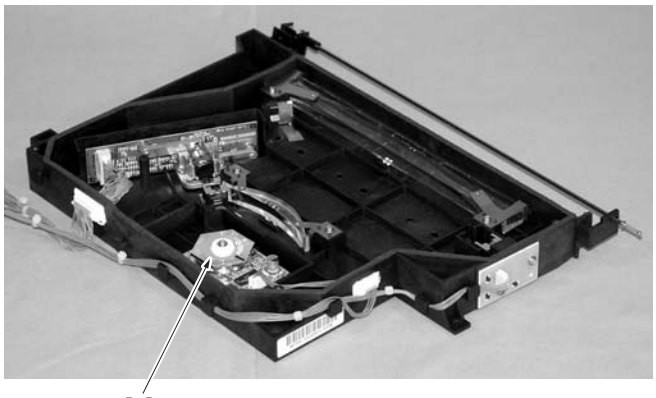
[1] M4 (Toner supply motor 1)
[2] M10 (Toner supply motor 2)
[3] SD9 (Toner solenoid)
△3 [4] FM7 (Internal cooling fan/2) (7145 only)
△3 [5] M3 (Developing motor) (7145 only)
[6] FM1 (DC power supply cooling fan)
[7] M7 (Tray motor/U)
[8] M8 (Tray motor/L)
[9] M6 (ADU motor)
[10] SD2 (1st paper feed solenoid/L)
[11] M9 (Paper feed motor)
[12] MC2 (Loop clutch)
[13] SD1 (1st paper feed solenoid/U)
[14] MC1 (Registration clutch)
[15] M1 (Main motor)
[16] SD5 (ADU gate solenoid)
[17] M11 (Fixing motor)
[18] M2 (Scanner motor)

(2) Main body right side (Paper feed section/ADU)



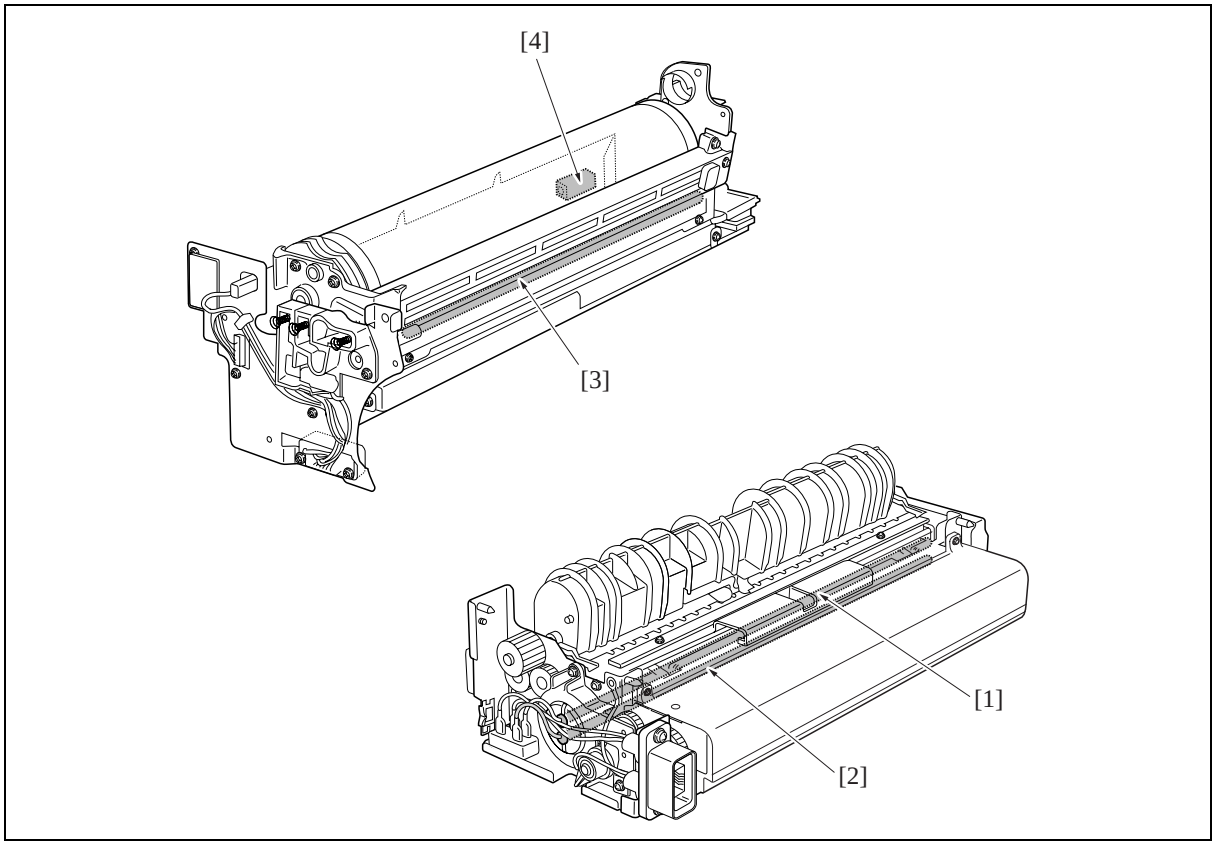
[1] FM3 (Internal dehumidifying fan/1)
[2] SD4 (Cleaning web solenoid)
[3] SD3 (Bypass feed solenoid)
[4] TSL (Transfer synchronization lamp)
[5] FM6 (Internal dehumidifying fan/2)

(3) Write unit



[1] M5 (Polygon motor)

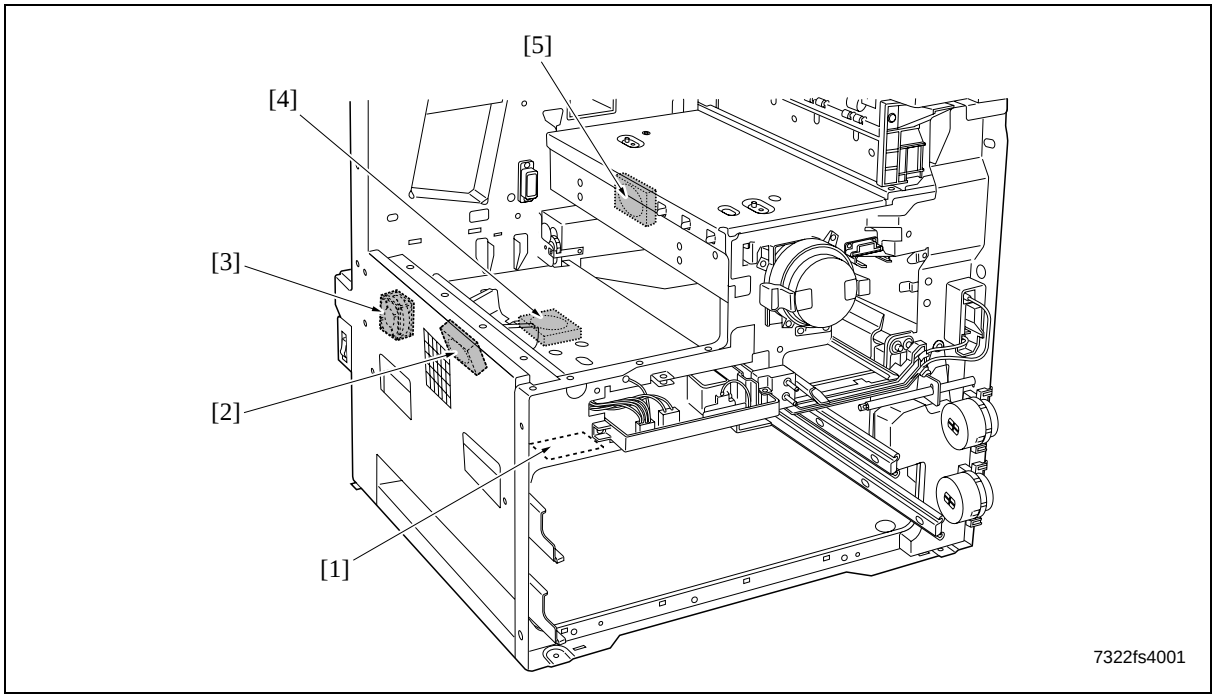
(4) Drum unit/Fixing unit



[1] L2 (Fixing heater lamp/1)
[2] L3 (Fixing heater lamp/2)
[3] PCL (Pre-charging exposure lamp)
[4] SD7 (Separation claw solenoid)

(5) Operation section/Scanner section

△3

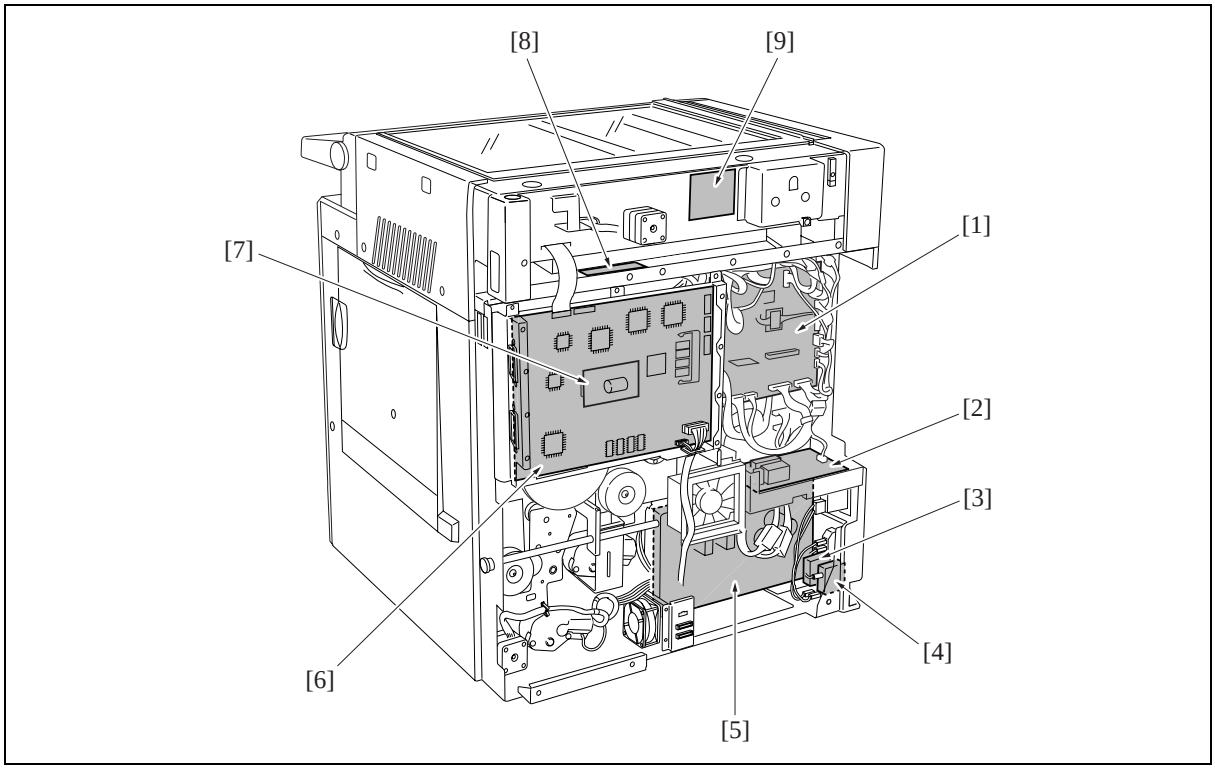


[1] PTC (Heater) : Option of the service parts setting
[2] FM4 (Internal cooling fan/1)
[3] FM5 (Developing suction fan)
△3 [4] FM7 (Polygon cooling fan) (7235 only)
△3 [5] FM2 (Fixing cooling fan) (7145/7235 only)

C. PCBs and others

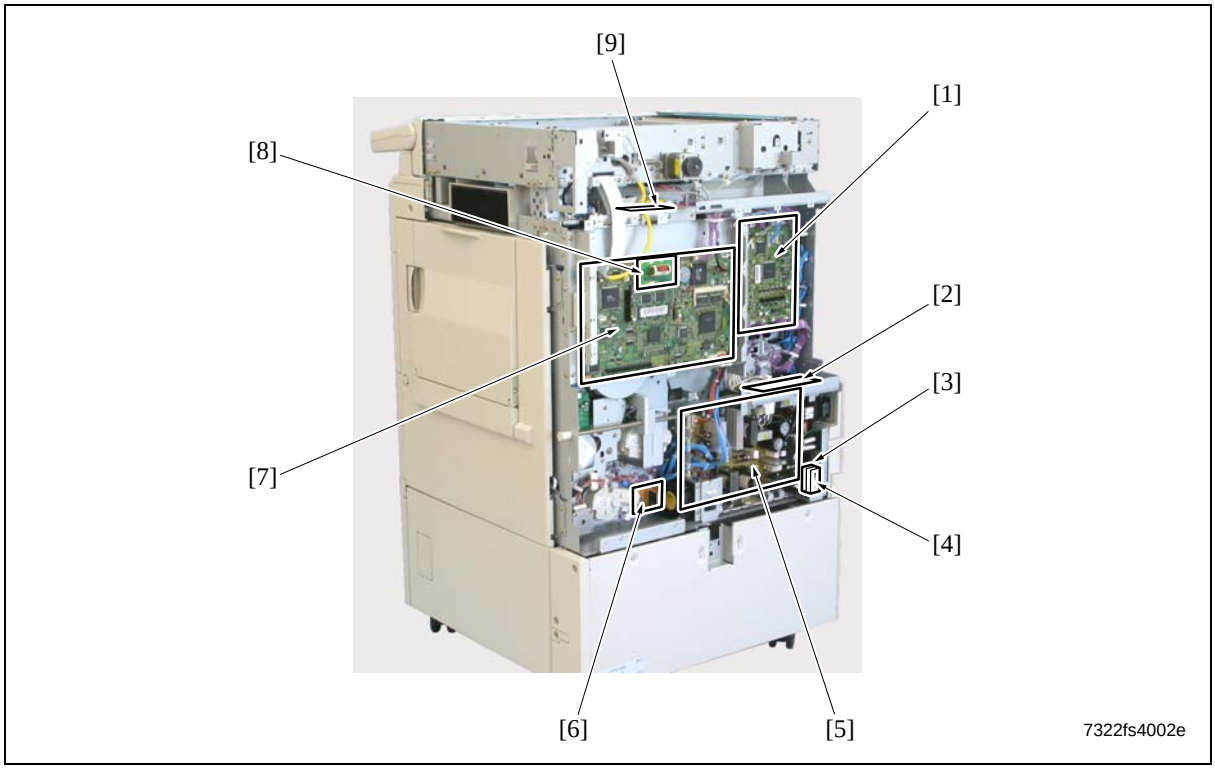
(1) Main body rear side

△3 In the case of the 7145



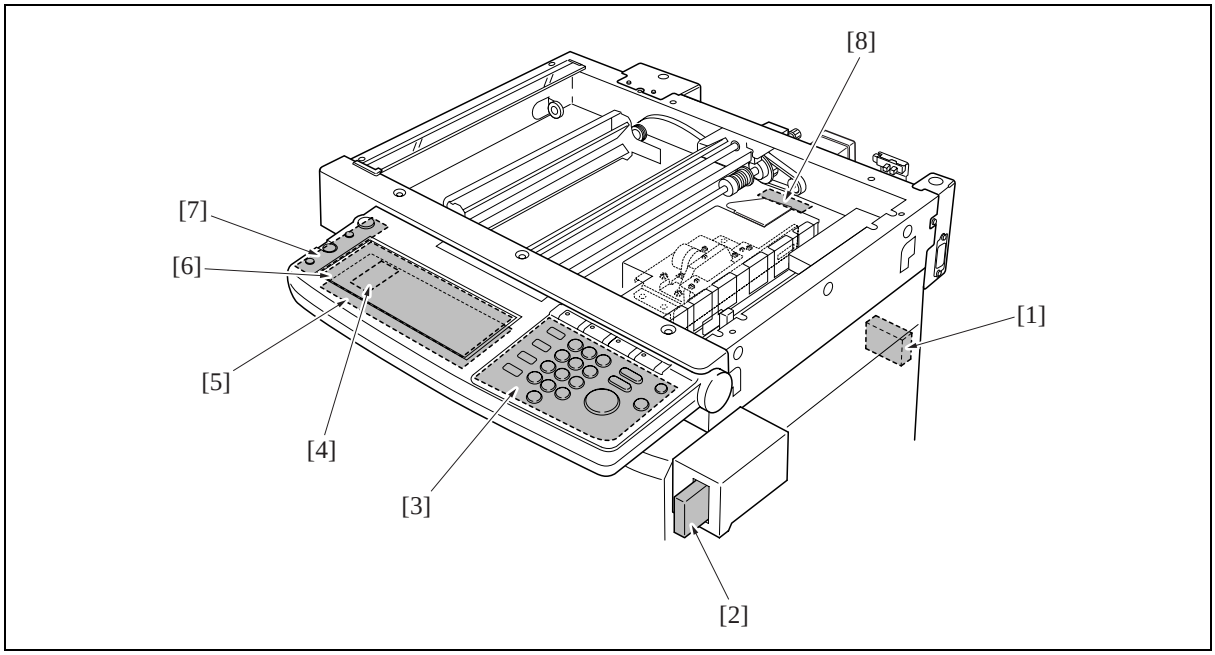
[1] CB (Main body control board)
[2] FCB (Fixing control board) : only 220V system
[3] CBR2 (Circuit breaker/2)
[4] CBR1 (Circuit breaker/1)
[5] DCPS (DC power supply)
[6] SCB (System control board)
[7] PRMB (Parameter memory board)
[8] INV1 (Exposure lamp inverter)
[9] SCDB (Scanner drive board)

△3 In the case of the 7235/7228/7222



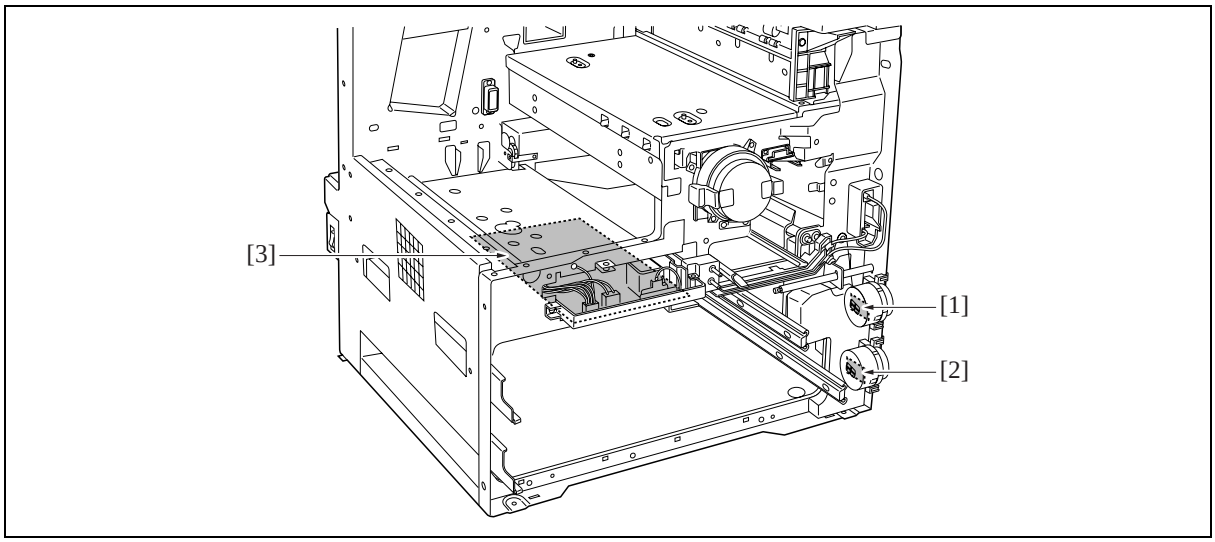
[1] CB (Main body control board)
[2] FCB (Fixing control board)
[3] CBR1 (Circuit breaker/1)
[4] CBR2 (Circuit breaker/2)
[5] DCPS (DC power supply)
[6] ADUDB (ADU drive board)
[7] SCB (System control board)
[8] PRMB (Parameter memory board)
[9] INV1 (Exposure lamp inverter)

(2) Operation section/Scanner section



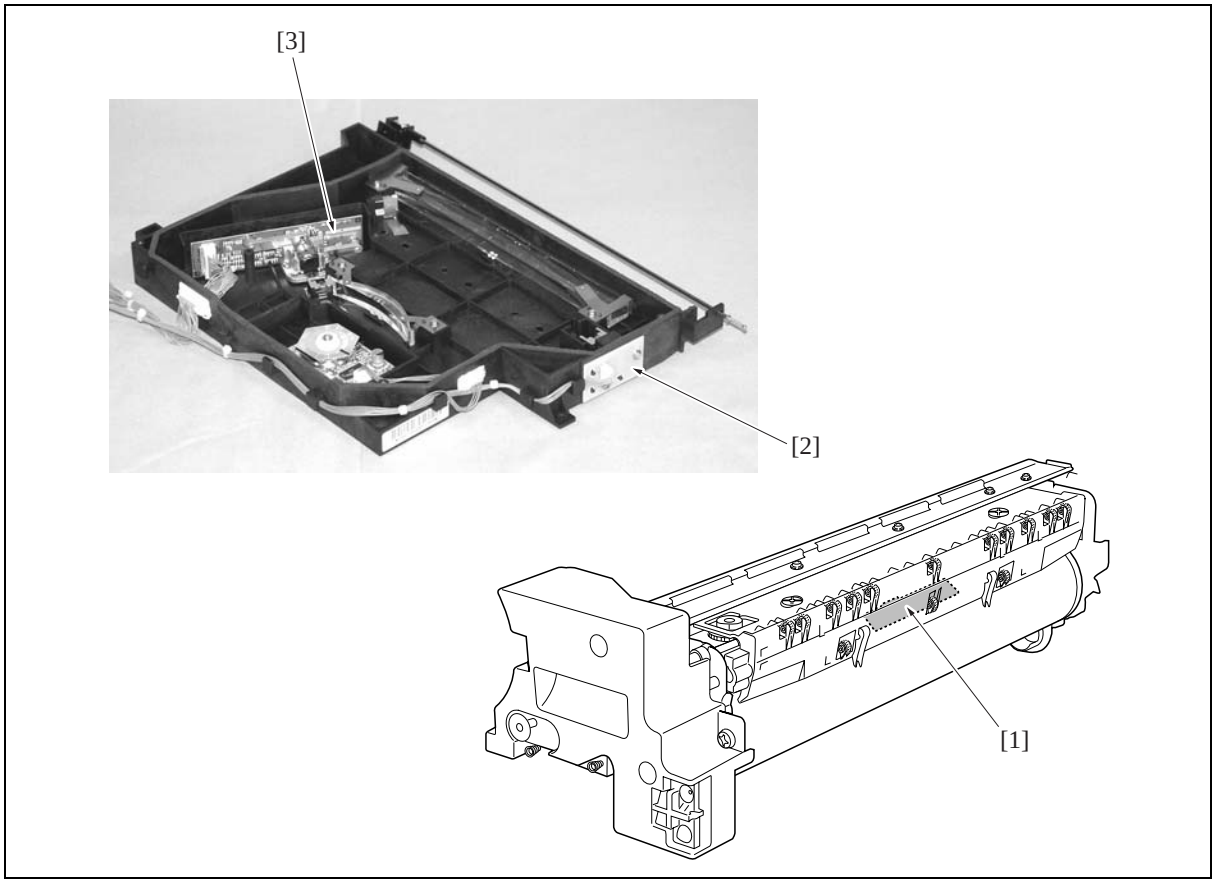
△3 [1] TC (Total counter)
(7145 is provided as standard equipment)
[2] KC (Key counter)
[3] OB (Operation board)
[4] INV2 (Display inverter)
[5] LCDB (Display board)
[6] PAKB (Panel key board)
[7] PSW2B (Power SW2 board)
[8] L1INVB (Exposure lamp power supply board)

(3) Main body front side



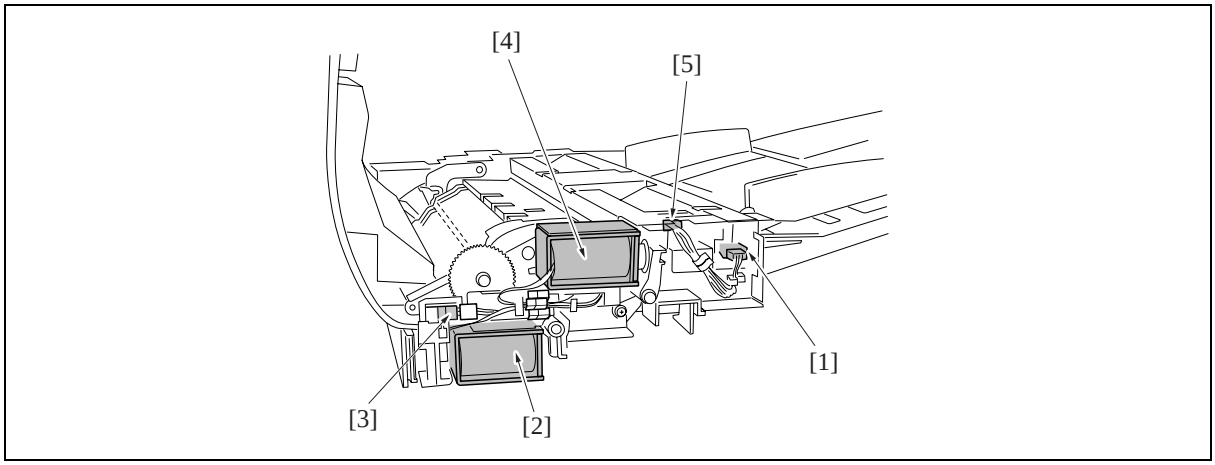
[1] PFDB/U (Paper feed detection board/U)
[2] PFDB/L (Paper feed detection board/L)
[3] HV (High voltage power)

(4) Write unit/Drum unit

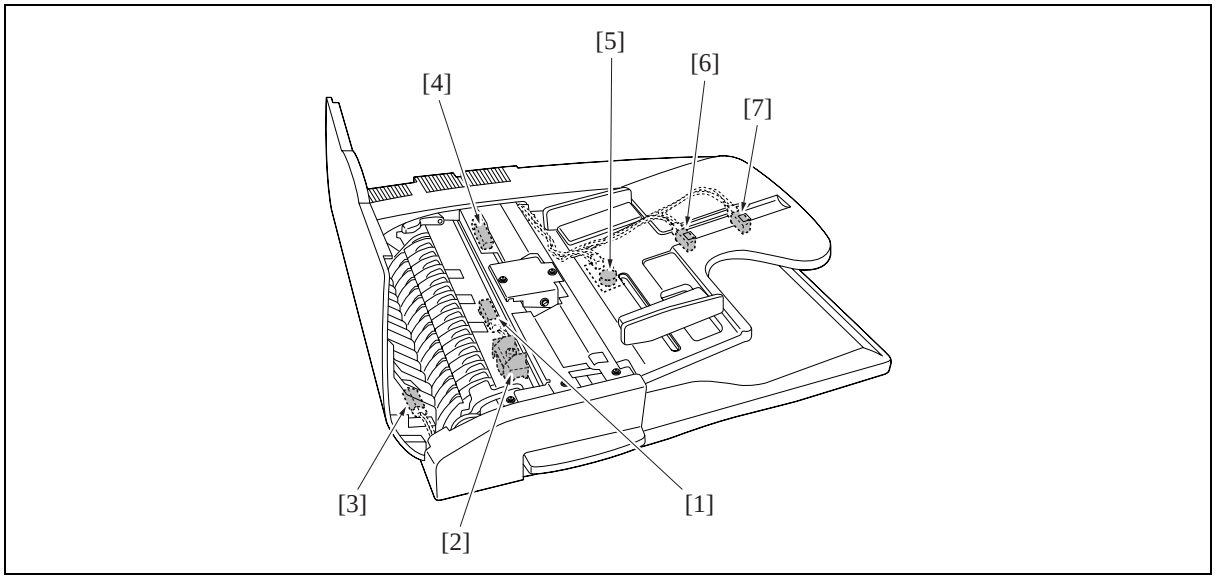


[1] TCSB (Toner control sensor board)
[2] INDEX (Index sensor board)
[3] LDB (LD drive board)

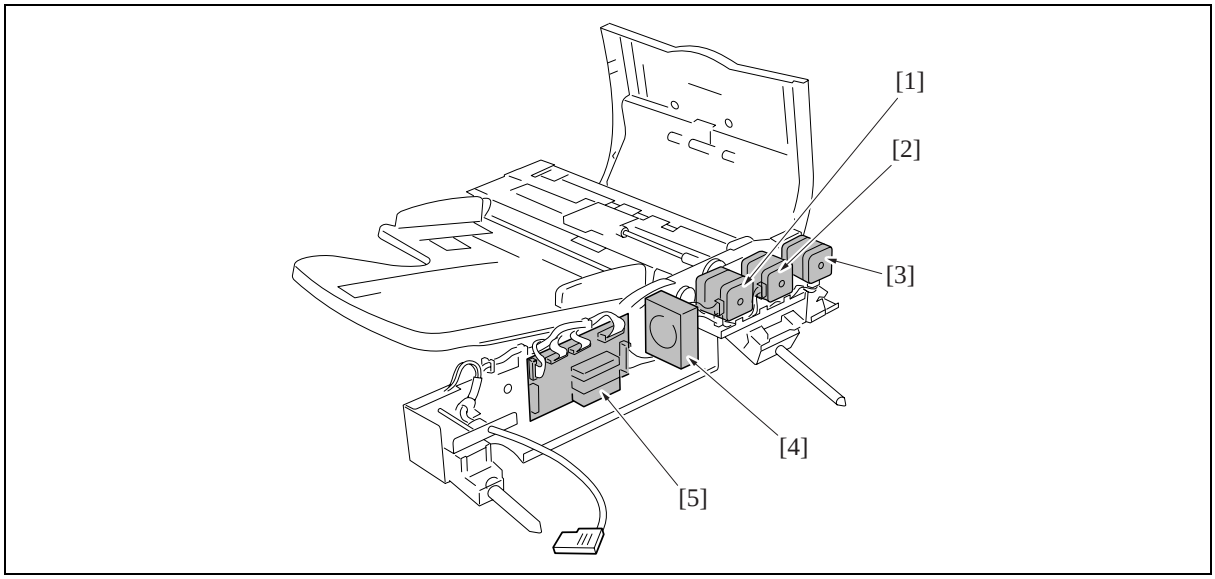
③ 1.2 DF-318/320 Parts Layout Drawing



[1] PS301 (Original no paper sensor)
[2] SD301 (Paper exit solenoid)
[3] PS303 (DF open/close sensor)
[4] SD302 (Roller pressure solenoid)
[5] PS304 (Cover open/close sensor)

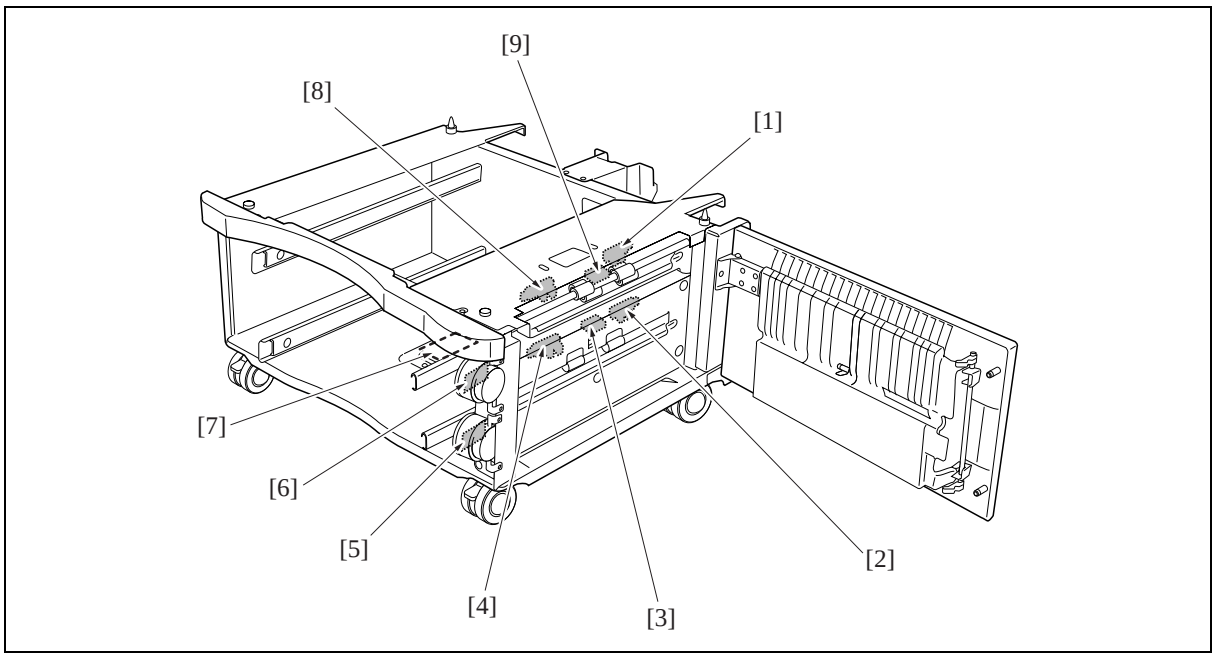


[1] PS308 (Original registration sensor)
[2] SD303 (Stamp solenoid)
[3] PS309 (Original conveyance sensor)
[4] PS302 (Original exit sensor)
[5] VR301 (Original size VR)
[6] PS305 (Original size sensor/1)
[7] PS306 (Original size sensor/2)

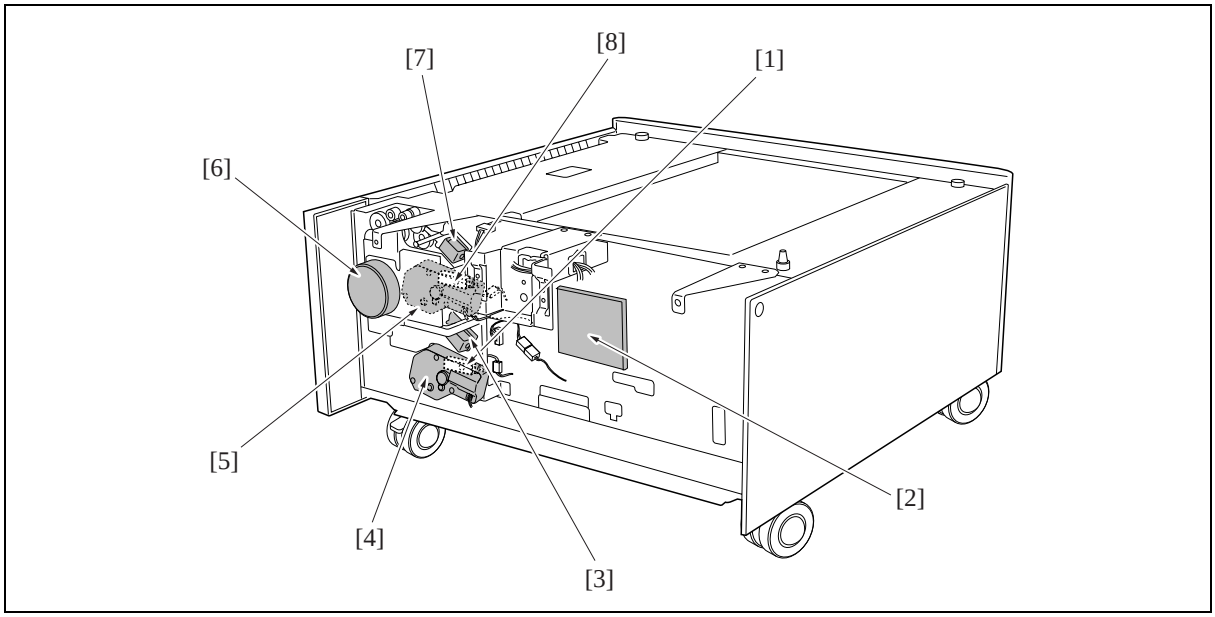


[1] M301 (Original feed motor)
[2] M303 (Original reverse motor)
[3] M302 (Original conveyance motor)
[4] FM301 (Cooling fan)
[5] DFDB (DF drive board)

1.3 DB-211 Parts Layout Drawing

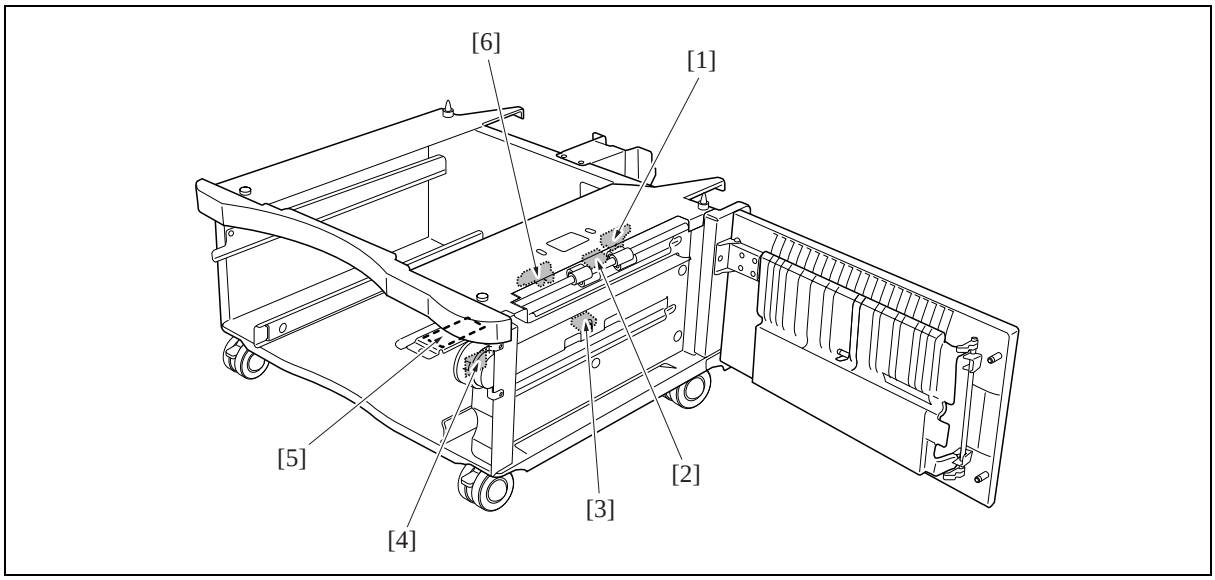


[1] PS103 (No paper senso /3)
[2] PS108 (No paper sensor/4)
[3] PS105 (Paper feed sensor/L)
[4] PS107 (Tray upper limit sensor/4)
[5] PSDTB/4 (Paper size detection board/4)
[6] PSDTB/3 (Paper size detection board/3)
[7] HTR100 (Heater) : Option of the service parts setting
[8] PS102 (Tray upper limit sensor/3)
[9] PS104 (Paper feed sensor/U)

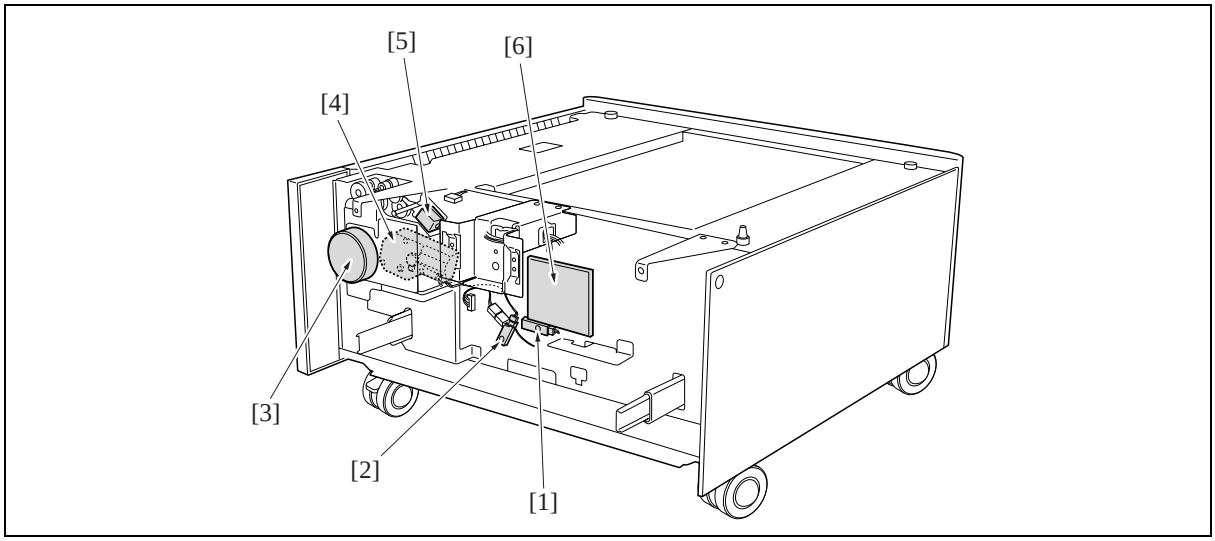


[1] PS106 (Tray sensor/4)
[2] DBDB (DB drive board)
[3] SD102 (Paper feed solenoid/L)
[4] M102 (Tray up drive motor/4)
[5] M101 (Tray up drive motor/3)
[6] M100 (DB feed motor)
[7] SD101 (Paper feed solenoid/U)
[8] PS101 (Tray sensor/3)

1.4 DB-411 Parts Layout Drawing

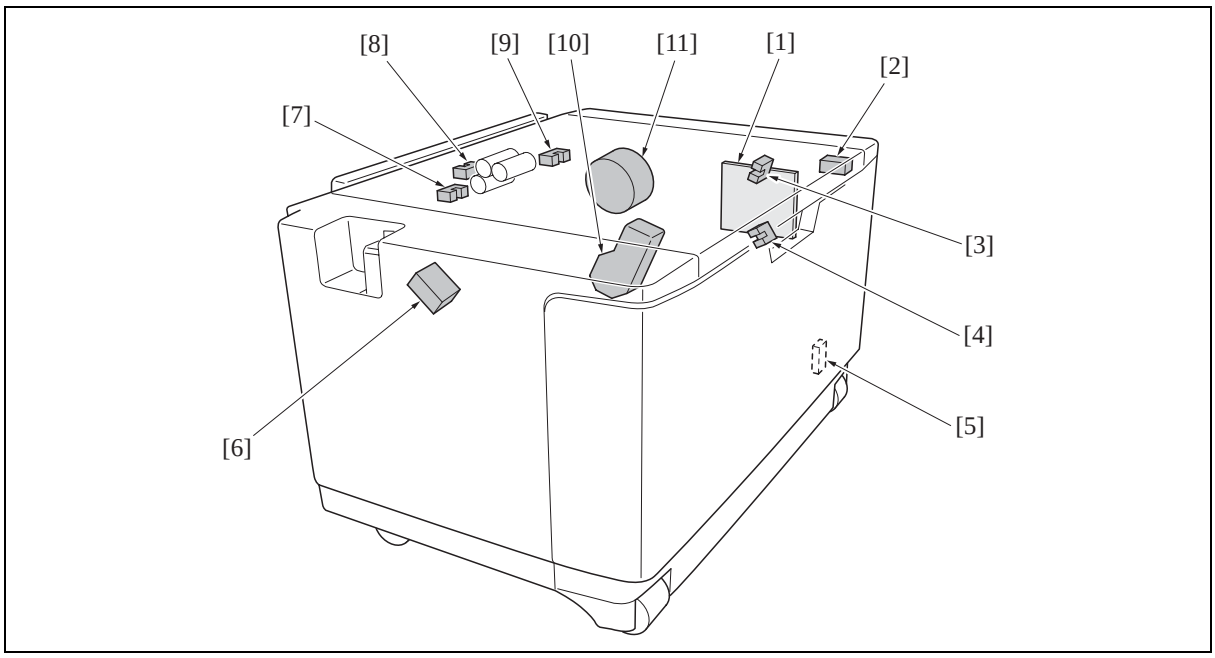


[1] PS103 (No paper sensor/3)
[2] PS104 (Paper feed sensor/U)
[3] PS105 (Paper feed sensor/L)
[4] PSDTB/3 (Paper size detection board/3)
[5] HTR100 (Heater) : Option of the service parts setting
[6] PS102 (Tray upper limit sensor/3)



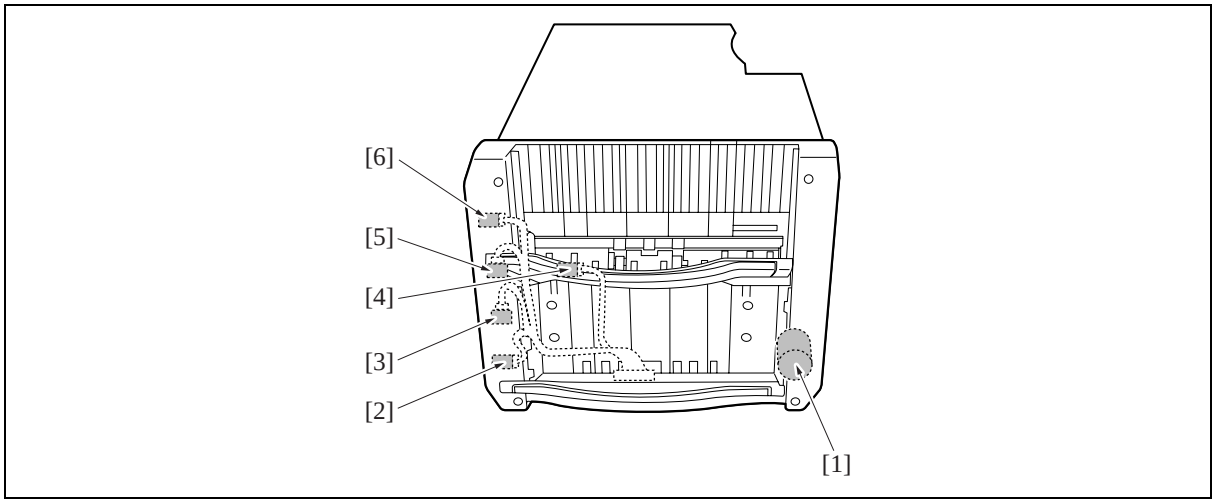
[1] PS109 (Remaining paper sensor)
[2] PS101 (Tray sensor/3)
[3] M100 (DB feed motor)
[4] M101 (Tray up drive motor/3)
[5] SD101 (Paper feed solenoid/U)
[6] DBDB (DB drive board)

1.5 LT-203 Parts Layout Drawing

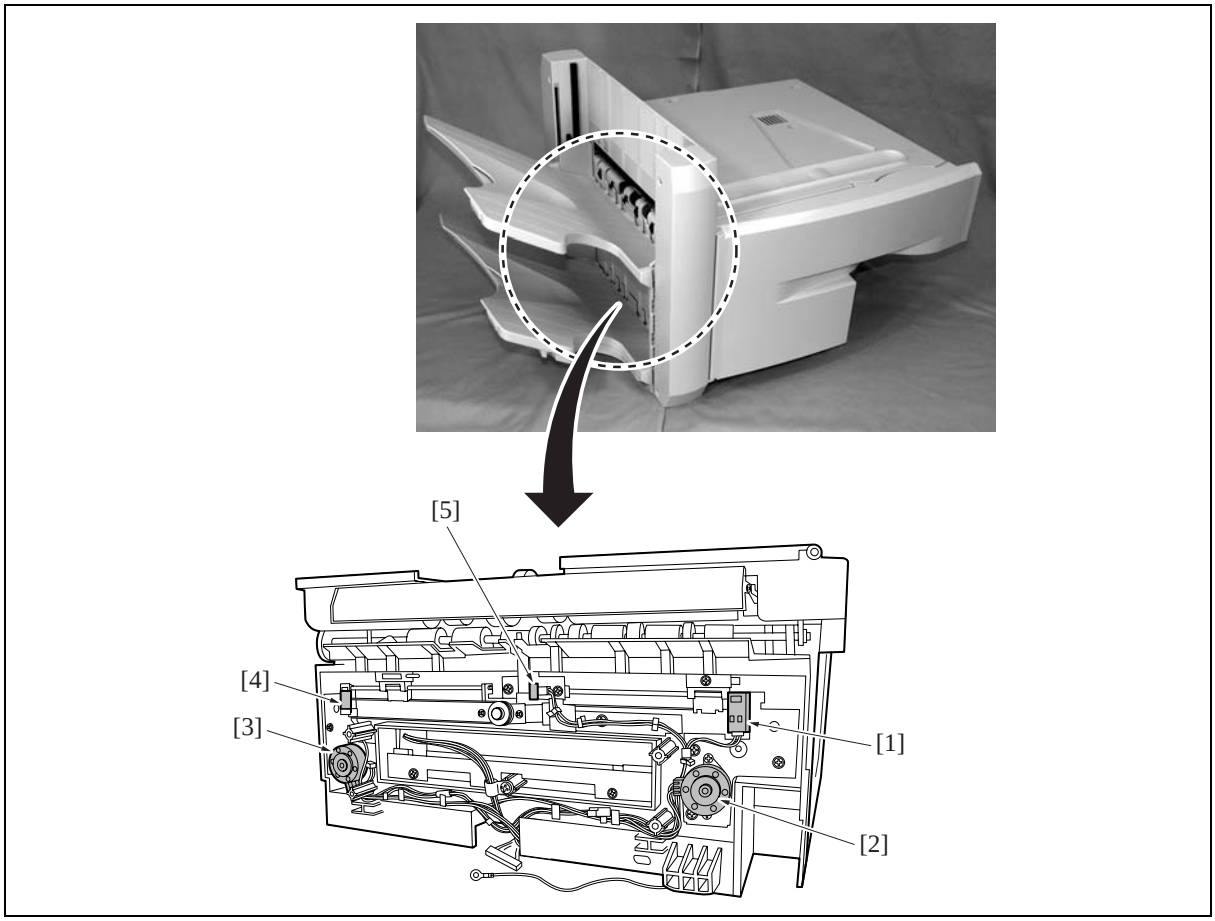


[1] LTDB (LT drive board)
[2] SW151 (Interlock switch)
[3] PS154 (Remaining paper sensor/1)
[4] PS151 (Remaining paper sensor/2)
[5] HTR150 (Heater) : Option of the service parts setting
[6] SD151 (LT paper feed solenoid)
[7] PS153 (No paper sensor)
[8] PS155 (Paper feed sensor)
[9] PS152 (Tray upper limit sensor)
[10] M151 (Tray up drive motor)
[11] M150 (LT paper feed motor)

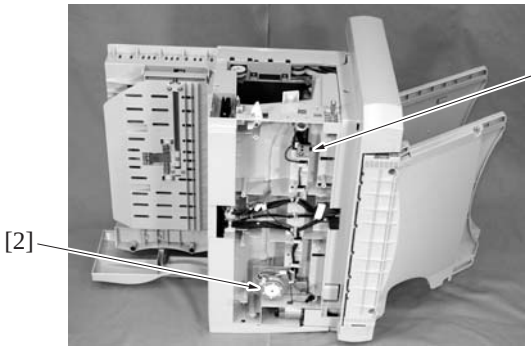
1.6 FS-112 Parts Layout Drawing



[1] M706 (Tray up/down motor)
[2] PS706 (Tray lower limit sensor)
[3] PS716 (Tray count sensor)
[4] PS703 (Paper exit sensor)
[5] PS704 (Paper exit full sensor)
[6] PS711 (Tray upper limit sensor)

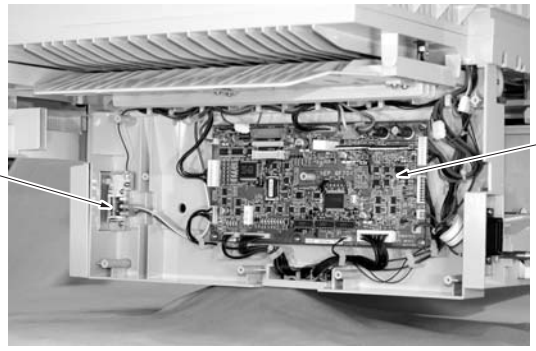


[1] PS710 (Alignment HP sensor /F)
[2] M704 (Alignment motor /F)
[3] M703 (Alignment motor /R)
[4] PS709 (Alignment HP sensor /R)
[5] PS707 (No paper sensor)



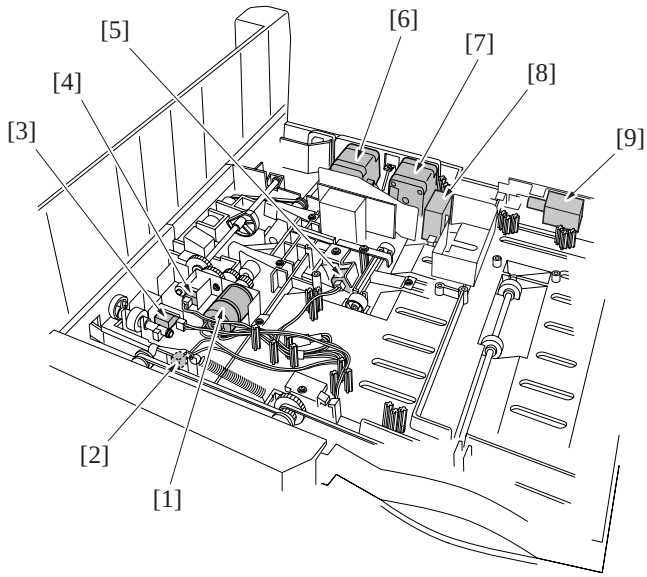
[1] PS708 (Stapler unit HP sensor)

[2] M705 (Stapler movement motor)

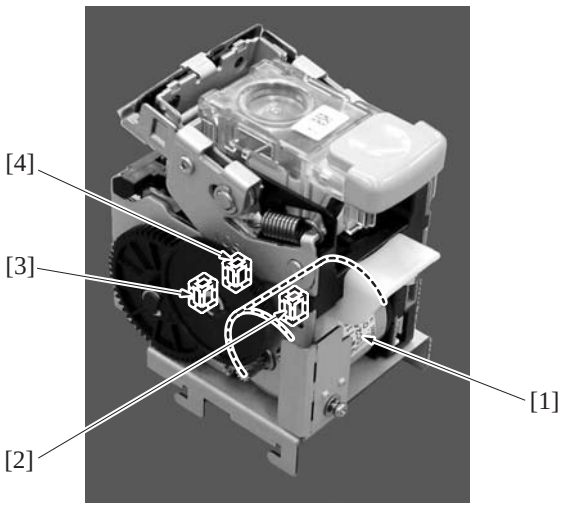


[1] MS701 (Front door switch)

[2] FNSCS (FNS control board)

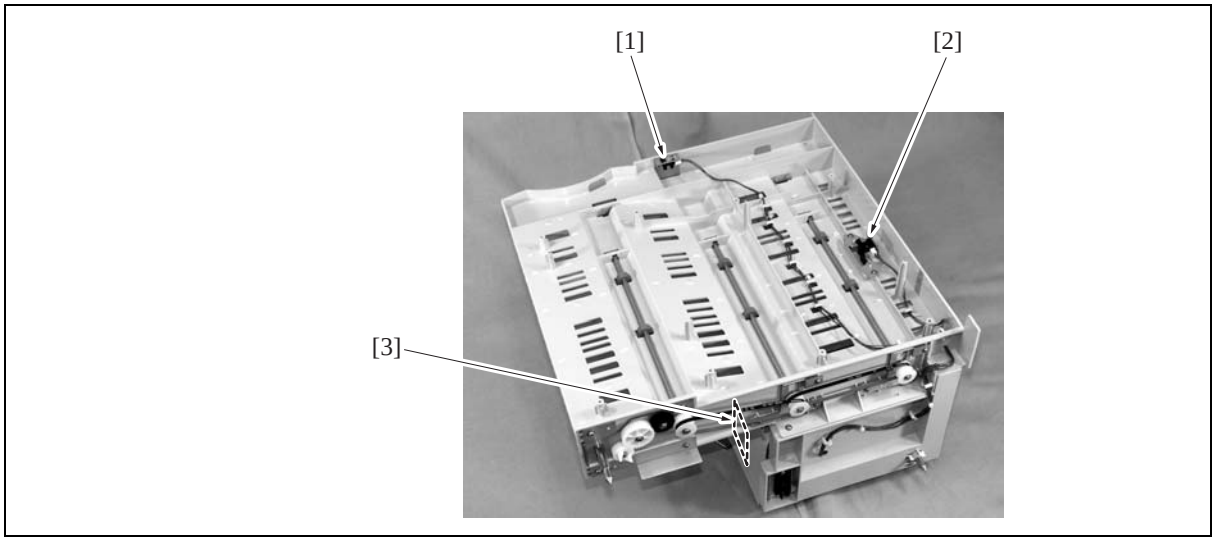


[1] M707 (Paper pressure motor)
[2] MS702 (Shutter switch)
[3] PS705 (Shutter sensor)
[4] PS701 (Paper pressure sensor)
[5] PS702 (FNS entrance sensor)
[6] M702 (Paper exit motor)
[7] M701 (FNS conveyance motor)
[8] FM701 (Cooling fan)
[9] SD701 (Roller release solenoid)



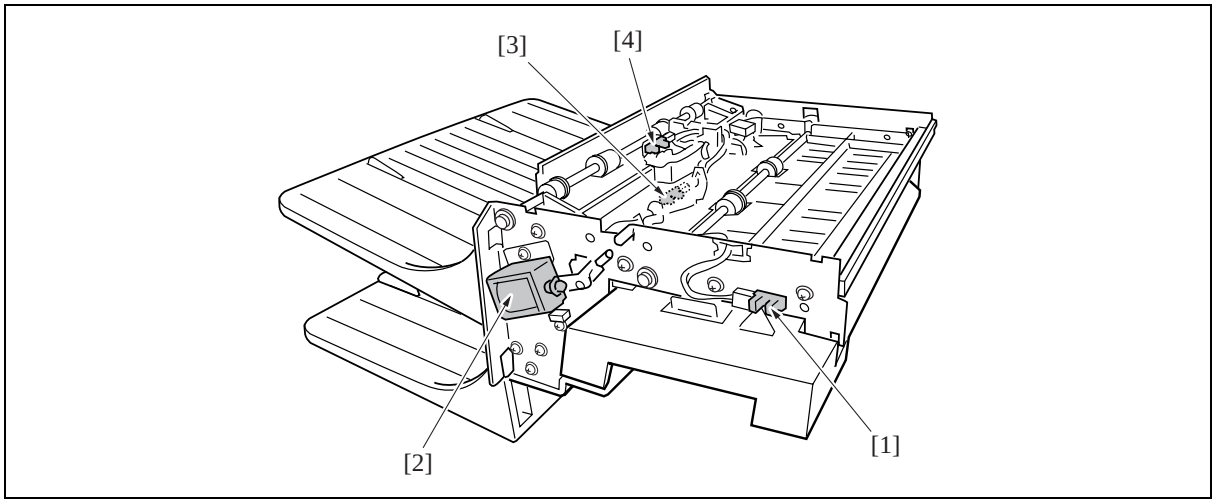
[1] M708 (Stapler motor)
[2] PS713 (Staple detection sensor)
[3] PS712 (Stapler HP sensor)
[4] PS714 (Stapler ready sensor)

1.7 RU-101 Parts Layout Drawing



[1] PS1 (Front door sensor)
[2] PS2 (Paper exit sensor)
[3] FUB (Fuse board)

1.8 IT-101 Parts Layout Drawing



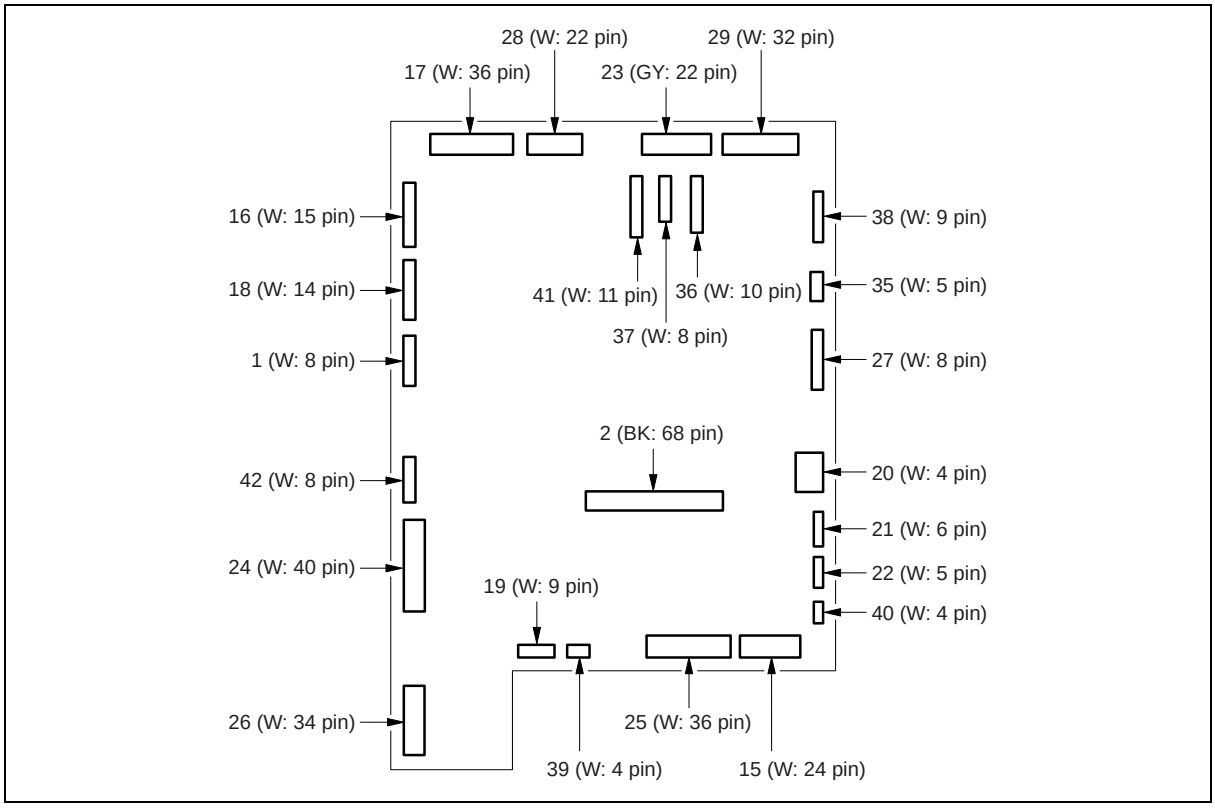
[1] PS25 (IT door sensor)
[2] SD8 (Gate solenoid)
[3] PS24 (IT paper exit sensor /L)
[4] PS23 (IT paper exit sensor /U)

2. CONNECTOR LAYOUT DRAWING

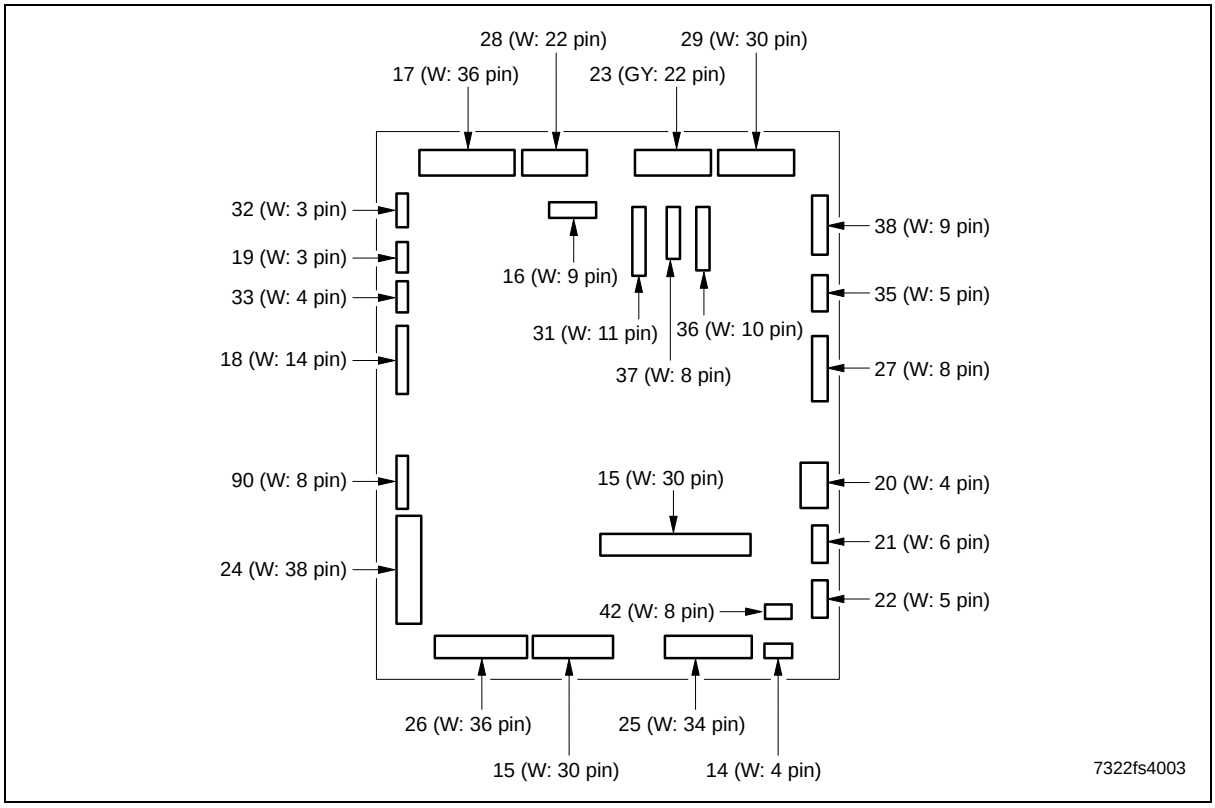
⚠3 2.1 Main Body Connector Layout Drawing

A. Main body control board

In the case of the 7145

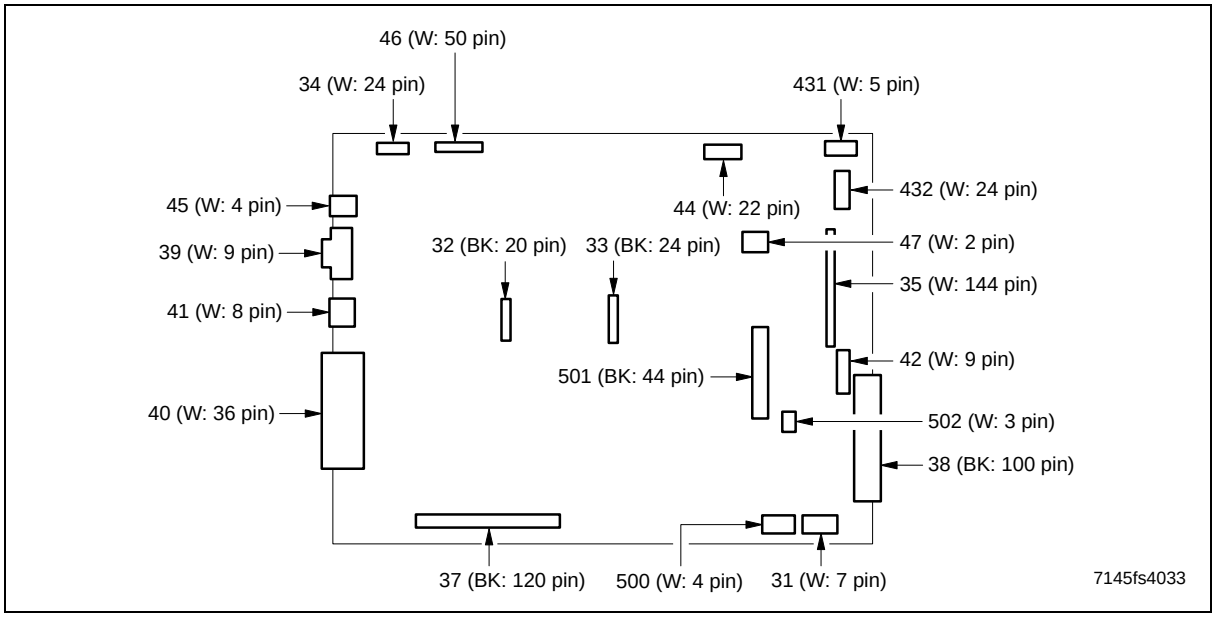


△3 In the case of the 7235/7228/7222



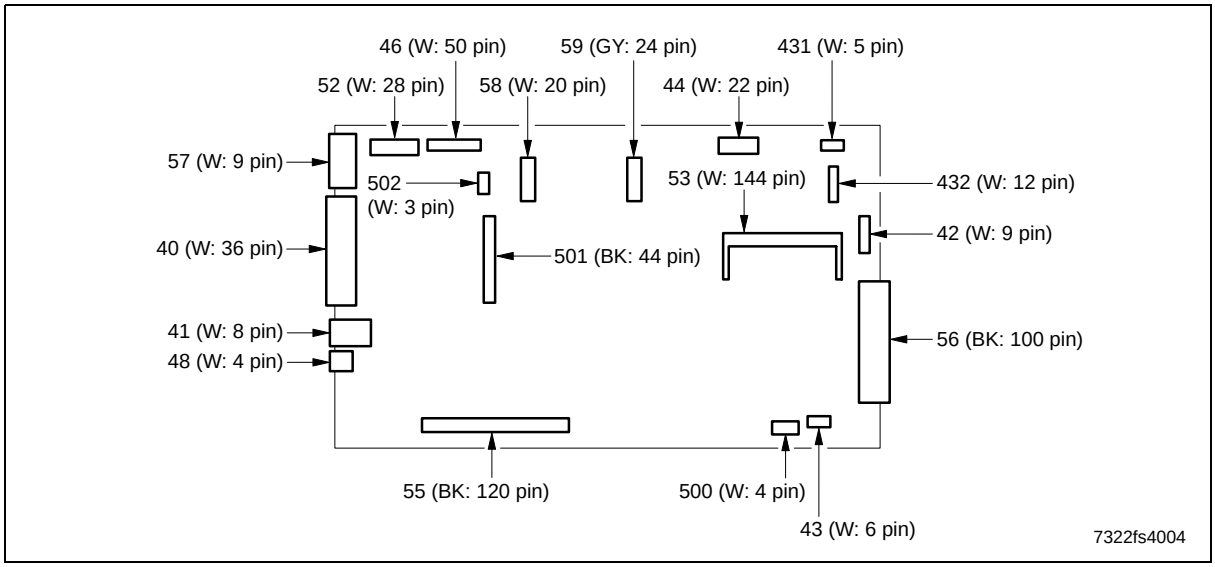
B. System control board

△3 In the case of the 7145

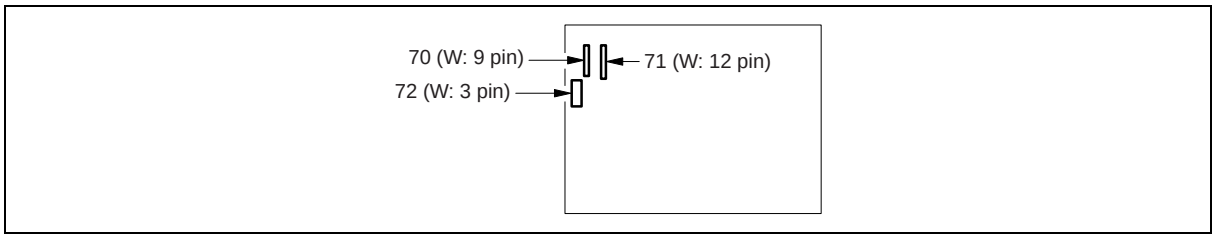


△3

△3 In the case of the 7235/7228/7222

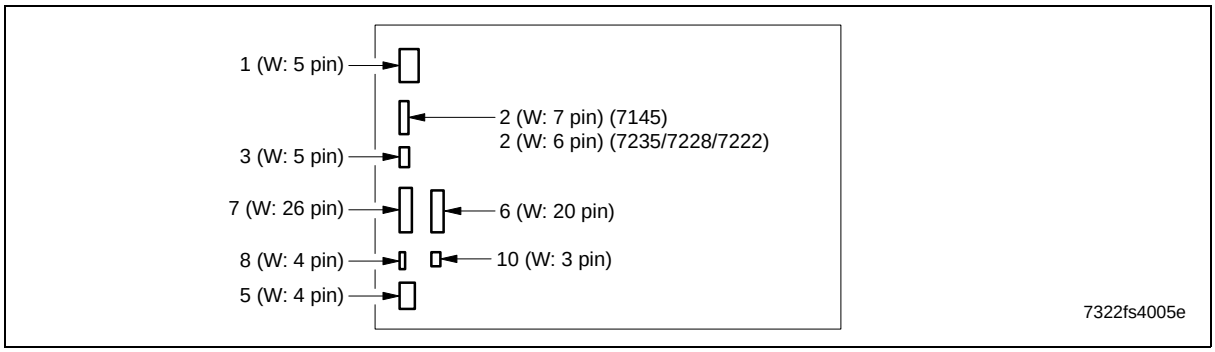


C. High voltage power

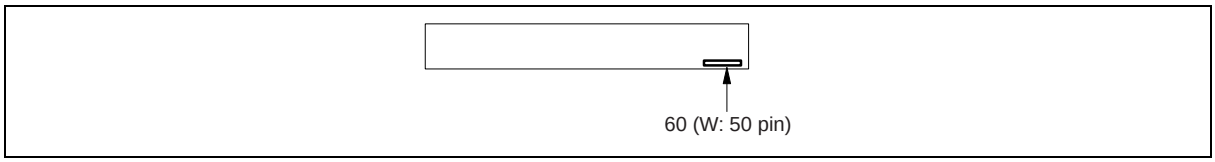


D. DC power supply

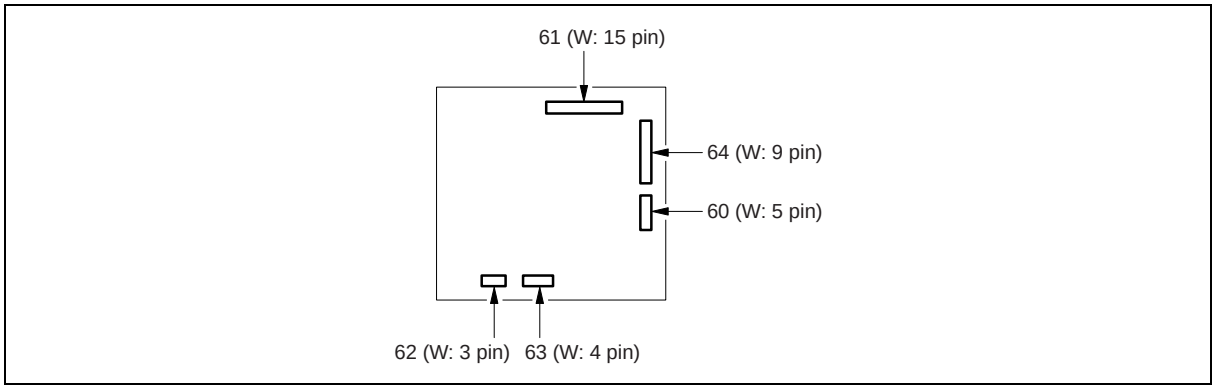
△3



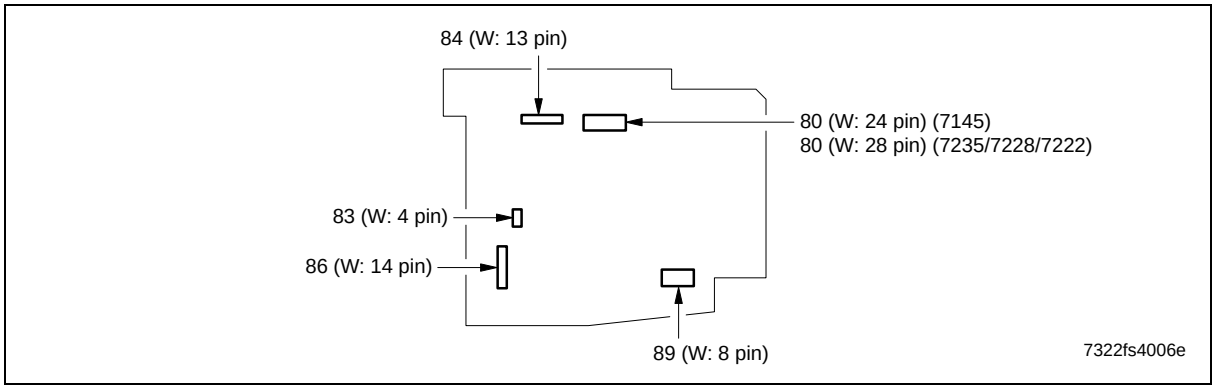
E. A/D conversion board



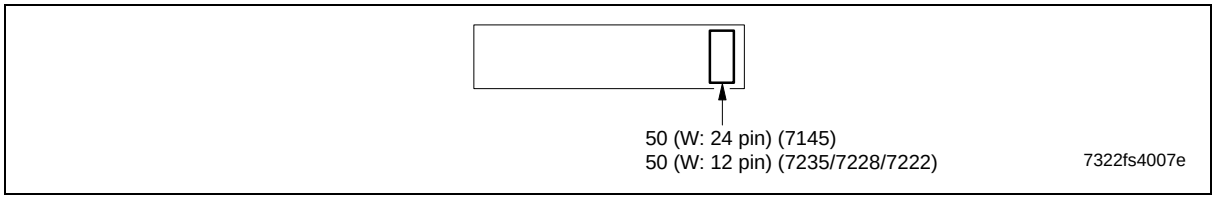
F. Scanner drive board (7145 only)



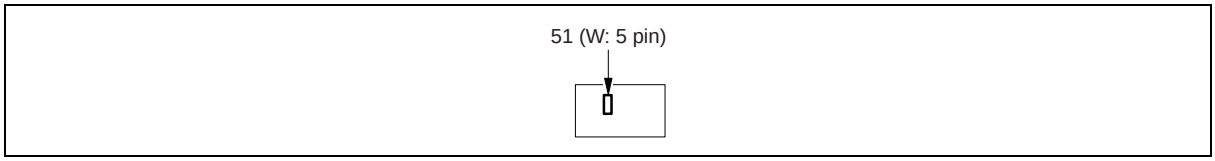
G. Operation board



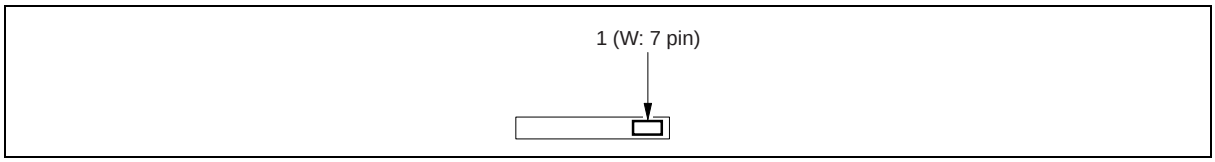
H. LD drive board



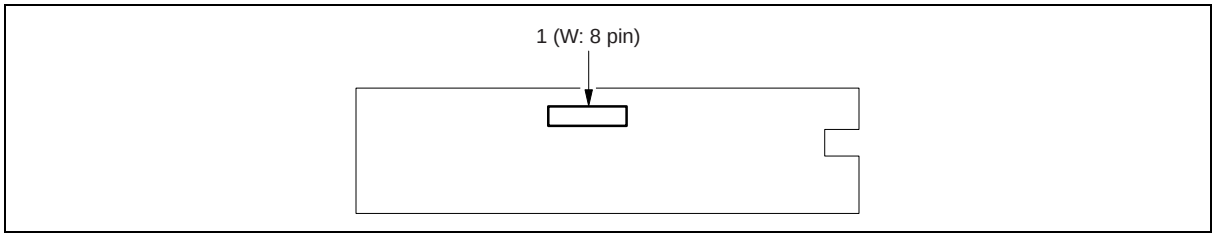
I. Index sensor board



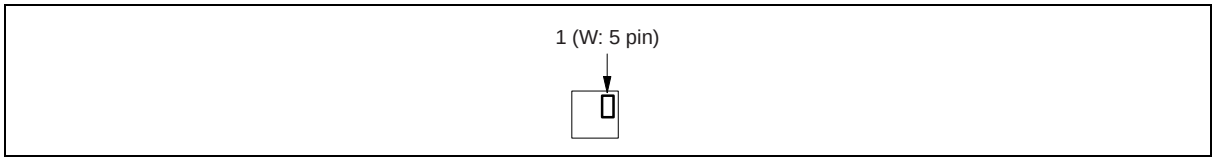
J. Toner control sensor board



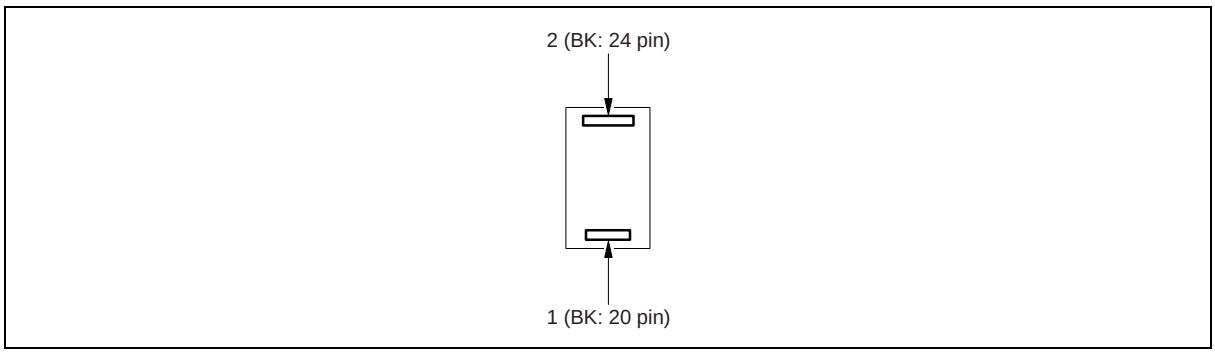
K. Power SW2 board



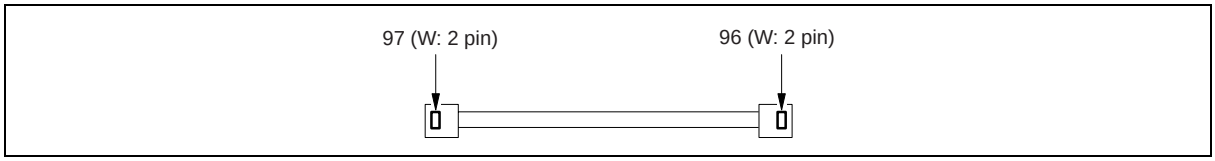
L. Paper size detection board /U, /L



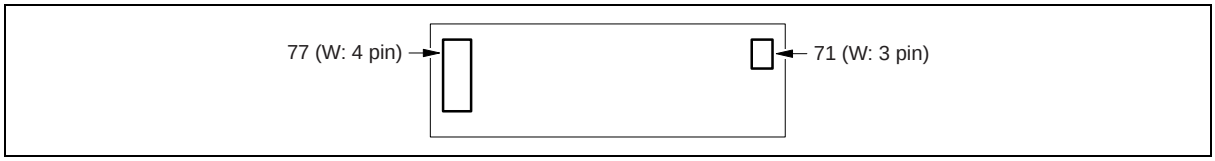
M. Parameter memory board



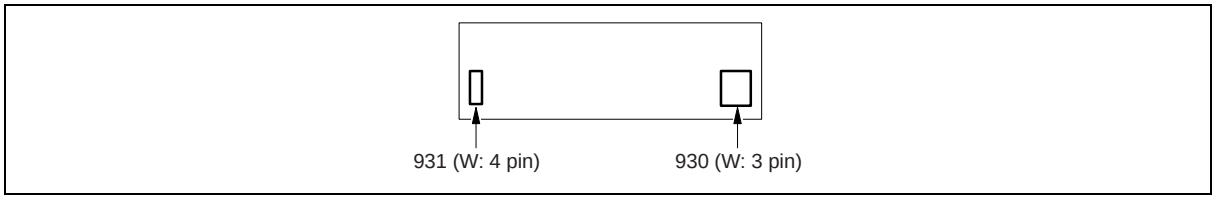
N. Exposure lamp power supply board



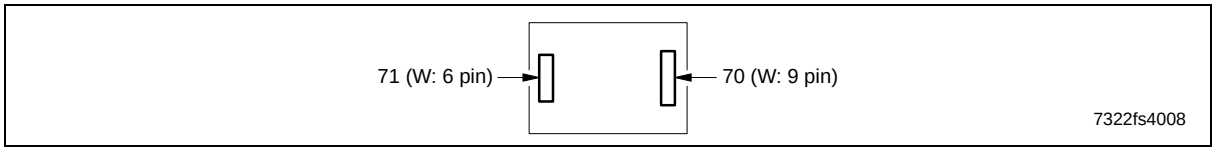
O. Display inverter



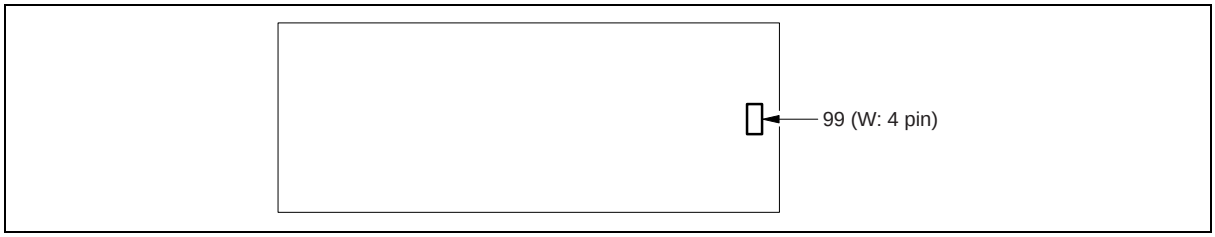
P. Exposure lamp inverter



△3 **Q. ADU drive board (Except the 7145)**

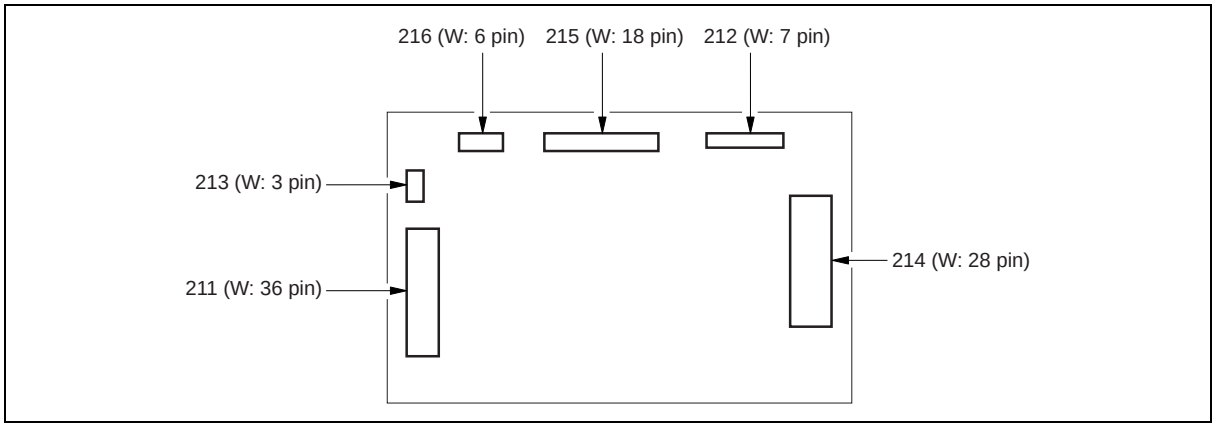


R. Fixing control board (Metric size only)



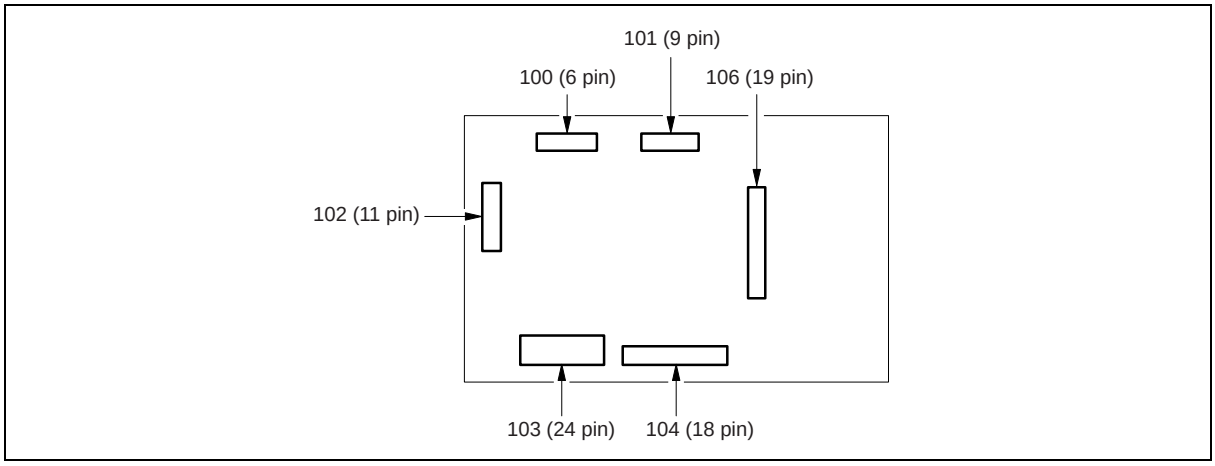
③ 2.2 DF-318/320 Connector Layout Drawing

A. DF drive board

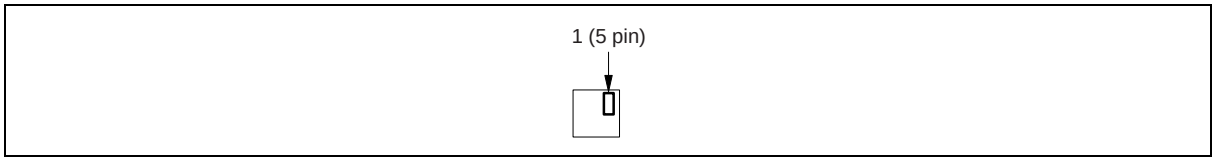


2.3 DB-211 Connector Layout Drawing

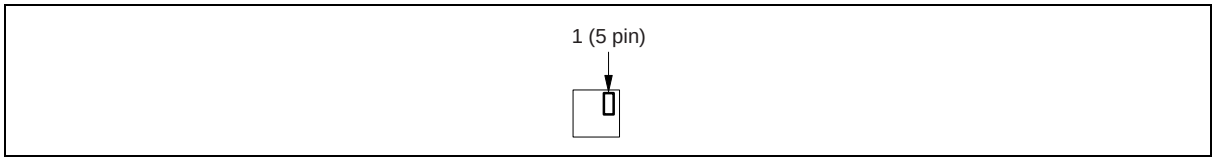
A. DB drive board



B. Paper size detection board /3

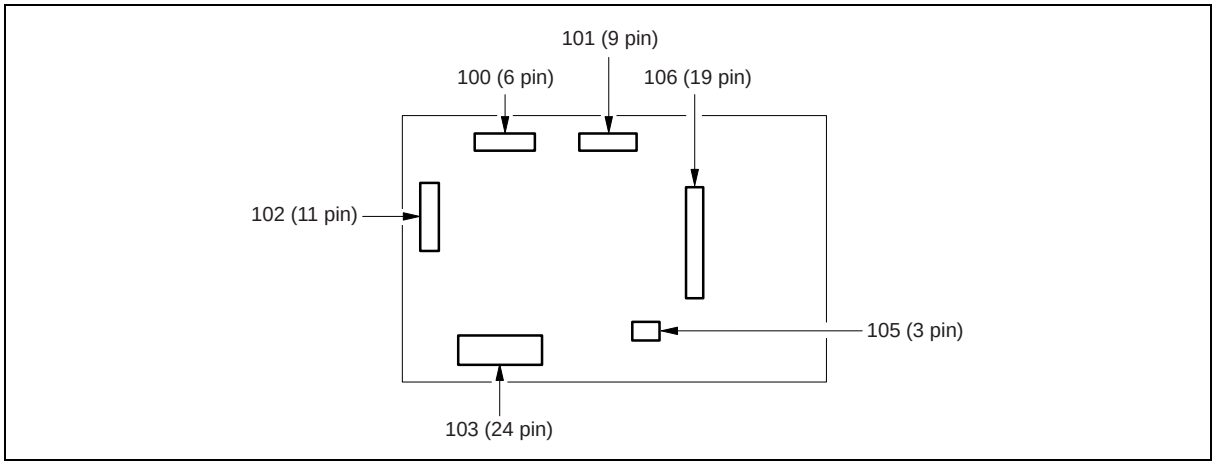


C. Paper size detection board /4

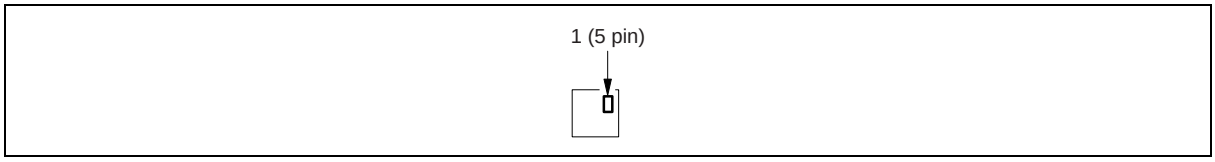


2.4 DB-411 Connector Layout Drawing

A. DB drive board

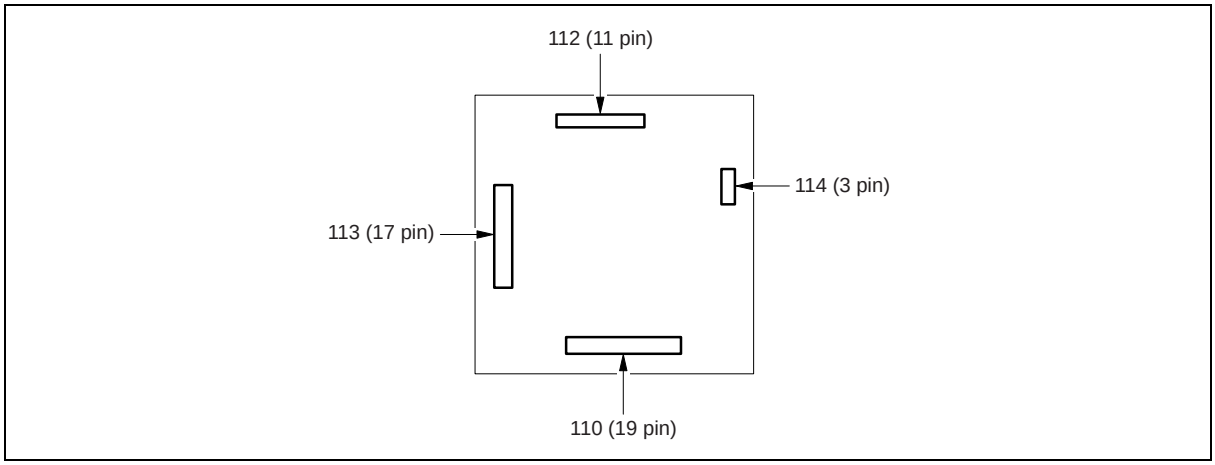


B. Paper size detection board /3



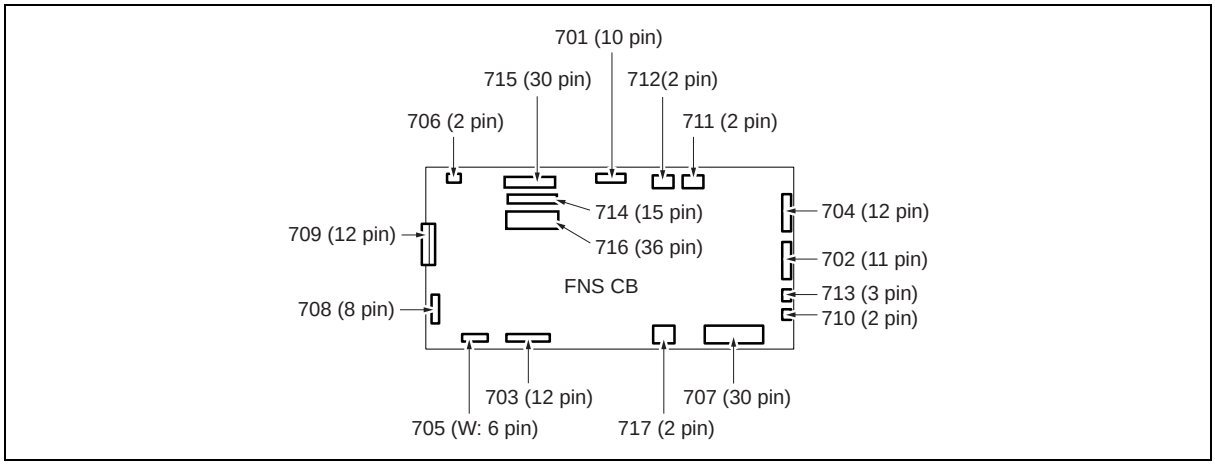
2.5 LT-203 Connector Layout Drawing

A. LT drive board



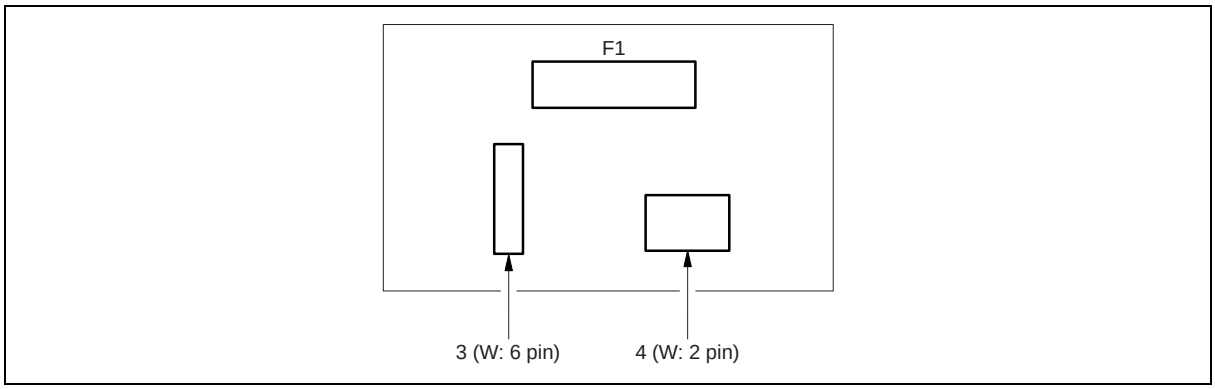
2.6 FS-112 Connector Layout Drawing

A. FNS control board



2.7 RU-101 Connector Layout Drawing

A. Fuse board



3. JAM CODE LIST

Classification	Jam Code	Causes		Resulting operation	Correction
Bypass	J10	During operation	PS1 (Registration sensor) failed to turn ON within a predetermined time after SD3 (Bypass solenoid) ON.	If copying is in progress at time of jam, the copier completes ejection and then stops.	Take out the paper from the bypass tray, and remove any jammed paper.
Upper tray	J11		PS1 (Registration sensor) failed to turn ON within a predetermined time after SD1 (First paper feed solenoid/U) ON.		Open the ADU door, remove any jammed paper. Pull out the tray, and remove any jammed paper.
Lower tray	J12		PS1 (Registration sensor) failed to turn ON within a predetermined time after SD2 (First paper feed solenoid/L) ON.		
DB tray	J13		PS104 (First paper feed sensor/U) failed to turn ON within a predetermined time after SD101 (Paper feed solenoid/U) ON.		Open the DB conveyance door, remove any jammed paperr. Pull out the tray, and remove any jammed paper.
	J14		PS105 (First paper feed sensor/L) failed to turn ON within a predetermined time after SD102 (Paper feed solenoid/L) ON.		
LT-203	J15		PS155 (Paper feed sensor) failed to turn ON within a predetermined time after SD151 (LT paper feed solenoid) ON.		Open the LT top cover, remove any jammed paper.
DB tray	J16-1		The PS1 (Registration sensor) is not turned ON in the specified period of time after either of the PS104 (Paper feed sensor/U), the PS105 (Paper feed sensor/L) and the PS155 (Paper feed sensor) is turned ON and then turned OFF.		Open the ADU door, remove any jammed paper.
LT-203	J16-2		PS104 (Paper feed sensor/U) or PS105 (Paper feed sensor/L) failed to turn ON within a predetermined time after SD151 (LT paper feed solenoid) ON.		Open the LT top cover, remove any jammed paper.
Others	J20-2		ADU door open jam SW3 (Interlock switch) went OFF during copying/printing.	Printer section stops immediately.	Remove jammed paper according to message.
Others FS-112	J20-3		FNS front door open jam MS701 (Front door) went OFF during copying/printing or, came off from the main body.		
③ Others FS-113	J20-3		FNS upper front cover open jam PC17 (Front door detection sensor) went OFF during copying/printing or, came off from the main body.		
③ Others FS-114	J20-3		FNS front door open jam The S1-FN (Front cover open/close detection SW) turned OFF while in copying/printing.		

	Classification	Jam Code		Causes	Resulting operation	Correction
	Others	J20-4	During operation	When an emergency stop instruction is received from the system while in the system emergency stop jam print job.	Printer section stops immediately.	Remove jammed paper according to message.
	Others RU-101	J20-5		RU-101 front door open jam PS1 (Front door sensor) went OFF during copying/printing.		
③	Others FS-112	J20-6		FNS shutter switch operation jam MS702 (Shutter) went ON during copying/printing.		
③	Others FS-114	J20-6		Intermediate transport guide open jam The S4-FN (Intermediate jam guide detection SW) turned OFF while in copying/printing.		
				Shutter open jam The S2-FN (Shutter detection SW) turned OFF while in copying/printing.		
	Others FS-113	J20-7		Top cover open jam PC18 (Top cover detection sensor) went OFF during copying/printing.		
③	Others SK-114	J20-7		SK-114 open jam The S4-SK (Saddle safety switch) turned OFF while in copying/printing.		
③	Others FS-113	J20-8		Connecting connector coming off jam The FS-113 connecting connector comes off from the main body during copying/printing.		
	Conveyance	J30		PS1 (Registration sensor) failed to turn ON within a predetermined time after MC1 (Registration clutch) ON.		Open the ADU door, remove any jammed paper.
		J31		PS2 (Fixing exit sensor) failed to turn ON within a predetermined time after MC1 (Registration clutch) ON.		
	Fixing/ Exit	J32		The PS2 (Fixing exit sensor) is not turned OFF in the specified period of time (by paper sizes) after it is turned ON.		
	Others	J50-1		Failed to receive print request from system within a predetermined time after PS1 (Registration sensor) ON.	The main body stop immediately.	
		J50-2		"Valid" signal failed to turn ON within a predetermined time after start of printing.		
		J50-3		MC1 (Registration clutch) failed to turn ON within a predetermined time after start of printing.		

	Classification	Jam Code		Causes	Resulting operation	Correction
③	DF-318/320	J61-1	During operation	The PS304 (Cover open/close sensor) is turned OFF while in operation.	The RADF stops immediately.	Open the open/close cover, remove any jammed paper. Remove any jammed paper from the main body's conveyance section.
		J61-2		The PS303 (DF open/close sensor) is turned OFF while in operation.		
③		J62-1		Original did not feed.		
③		J62-2		PS309 (Original conveyance sensor) failed to turn ON within a predetermined time after start of refeed for single sided original.		
		J62-3		PS309 (Original conveyance sensor) failed to turn ON within a predetermined time after start of reverse refeed for double sided original.		
		J62-4		PS309 (Original conveyance sensor) did not go OFF within the specified period after it went ON, during original exit.		
		J62-5		PS309 (Original conveyance sensor) did not go OFF within the specified period after it went ON, during original reversal.		
		J63-1		PS302 (Original exit sensor) did not go ON during original exit.		
		J63-2		PS302 (Original exit sensor) did not go OFF within the specified period after it went ON, during original exit.		
		J63-3		PS308 (Original registration sensor) failed to turn OFF within a predetermined time after start of refeed for single sided original.		
		J63-4		PS309 (Original conveyance sensor) failed to turn OFF within a predetermined time after start of reverse refeed for double sided original.		
		J65-1	When idling	PS308 (Original registration sensor) ON during idling state.	—	Open the open/close cover, remove any jammed paper.
		J65-2		PS309 (Original conveyance sensor) ON during idling state.		Open the open/close cover and the reverse guide and remove jammed paper, if any.
		J65-3		PS308 (Original registration sensor), PS309 (Original conveyance sensor) ON during idling state.		
		J65-8		PS302 (Original exit sensor) ON during idling state.		
		J65-9		PS308 (Original registration sensor), PS302 (Original exit sensor) ON during idling state.		
		J65-10		PS309 (Original conveyance sensor), PS302 (Original exit sensor) ON during idling state.		

	Classification	Jam Code		Causes	Resulting operation	Correction
③	DF-318/ 320	J65-11	When idling	PS308 (Original registration sensor), PS309 (Original conveyance sensor), PS302 (Original exit sensor) ON during idling state.	—	Open the open/ close cover and the reverse guide and remove jammed paper, if any.
	FS-112	J72-1		PS702 (FNS entrance sensor) ON during idling state.		Remove jammed paper, if any, from the FNS/main body.
	FS-113 RU-101	J72-1		The PS2 (Passage sensor) of RU-101 is turned ON while in idling.		Remove jammed paper, if any, from the FNS/RU/main body.
	FS-114	J72-1		PC4-FN (Entrance sensor) is ON during idling.		Remove jammed paper, if any, from the FNS/main body.
	FS-112	J72-2		PS707 (No paper sensor) ON during idling state.		
	FS-113	J72-2		While in idling, either of the PC4 (Upper path sensor), the PC2 (Lower path sensor), PC3 (Storage sensor), PC5 (Process tray paper exit sensor) and the PC1 (1st tray exit sensor) is ON.		Remove jammed paper, if any, from the FNS/main body.
	FS-114	J72-2		PC5-FN (Transport sensor) is ON during idling.		
		J72-3		PC8-FN (Storage tray detecting sensor) is ON during idling.		
	SK-114	J72-4		PC20-SK (Saddle exit sensor) is ON during idling.		Remove jam paper from SK/FNS if any.
	FS-112	J72-16	During operation	PS702 (FNS entrance sensor) failed to turn ON within a predetermined time after PS2 (Fixing exit sensor) ON.	The FNS/main body stop immediately.	Remove jammed paper, if any, from the FNS/main body.
	FS-113 RU-101	J72-16		After the PS2 (Fixing exit sensor) is turned ON, the PS2 (Passage sensor) of RU-101 is not turned ON.		Remove jammed paper, if any, from the FNS/RU/main body.
	FS-114	J72-16		PC4-FN (Entrance sensor) does not ON after specified time from PS2 (fixing exit sensor) ON.		Open front door and remove jammed paper if any.
	FS-112	J72-17		PS707 (No paper sensor) failed to turn ON within a predetermined time after PS702 (FNS entrance sensor) ON. (Straight, sort/ group mode for other than small size)		Remove jammed paper, if any, from the FNS/the main body.

Classification	Jam Code		Causes	Resulting operation	Correction
FS-113	J72-17	During operation	• The PS2 (Passage sensor) of RU-101 is not turned OFF. • After the PS2 of RU-101 is turned ON, the PC1 (1st tray exit sensor) is not turned ON. (Sort/Group) • After the PS2 of RU-101 is turned ON, the PC4 (Upper path sensor) is not turned ON. (Staple) • After the PS2 of RU-101 is turned ON, the PC2 (Lower path sensor) is not turned ON. (Staple/Sort/Group) • The PC4 is not turned OFF after it is turned ON. (Staple) • The PC2 is not turned OFF after it is turned ON. (Staple/Sort/Group) • After the PC4 is turned ON, the PC3 (Storage sensor) is not turned ON. (Staple) • After the PC2 is turned ON, the PC3 is not turned OFF. (Staple/Sort/Group)	The FNS/main body stop immediately.	Pull out the FNS from the main body, and remove jammed paper, if any, from the FNS/ main body.
⚠1 FS-114	J72-17		PC4-FN (Entrance sensor) does not OFF after specified time from ON.		Open front door and remove jammed paper if any.
			PC5-FN (Transport sensor) does not ON after specified time from PC4-FN (Entrance sensor) ON.		
FS-113	J72-18		• After the PC1 (1st tray exit sensor) is turned ON, it is not turned OFF. • After the PC3 (Storage sensor) is turned ON, it is not turned OFF.		Pull out the FNS from the main body, and remove jammed paper, if any, from the FNS/ main body.
⚠1 FS-114	J72-18		PC5-FN (Transport sensor) does not OFF after specified time from ON.		Open front door and remove jammed paper if any.
FS-112	J72-19		PS702 (FNS entrance sensor) failed to turn OFF within a predetermined time after turning ON. (Staple, sort/group)		Remove jammed paper, if any, from the FNS/main body.
	J72-21		PS707 (No paper sensor) failed to turn OFF within a predetermined time after PS703 (Paper exit sensor) turning ON. (Small size staple, sort/group)		

	Classification	Jam Code		Causes	Resulting operation	Correction
	FS-113	J72-21	During operation	While exiting paper after completion of stapling, the PC5 (Process tray paper detection sensor) is not turned OFF after it is turned ON.	The FNS/main body stop immediately.	Pull out the FNS from the main body, and remove jammed paper, if any, from the FNS/ main body.
③	FS-114 SK-114	J72-21		After specified time from stapling, PC8-FN (Strorage tray paper detect sensor) or PC20-SK (Saddle exit sensor) of SK-114 does not ON.		Remove jammed paper, if any, from the FNS/main body.
	FS-112	J72-23		PS707 (No paper sensor) failed to turn OFF within a predetermined time after PS703 (Paper exit sensor) turning ON. (Straight)		
	FS-114 SK-114	J72-25		PC22-SK (Crease roller home position sensor) does not ON within specified time.		Open front door and remove jammed paper if any.
③	FS-114 PK-114	J72-43		M1-PK (Punch motor) does not OFF after specified time from ON.		
	FS-112	J72-81		Staple jam M708 (Stapler motor) failed to turn OFF within a predetermined time after turning ON. (Forward operation not completed.)		Remove the jammed staple.
	FS-113	J72-81		After the staple motor 1 starts forward rotation, the PC14 (Staple home sensor) is not turned ON in the specified period of time. Then, the staple motor 1 starts backward rotation and the PC14 is turned ON in the specified period of time.	The FNS/main body stop immediately.	Pull out the FNS from the main body, and remove jammed staples, if any.
	FS-114	J72-81		Staple home position sensor does not ON after specified time from staple motor forward rotation.		Remove jammed staple, if any.
	FS-113	J72-82		After the staple motor 2 starts forward rotation, the PC14 (Staple home sensor) is not turned ON in the specified period of time. Then, the staple motor 2 starts backward rotation and the PC14 is turned ON in the specified period of time.		Pull out the FNS from the main body, and remove jammed staples, if any.
		J72-83		After the staple motors 1 and 2 start forward rotation, the PC14 (Staple home sensor) is not turned ON in the specified period of time. Then, the staple motors 1 and 2 start backward rotation and the PC14 is turned ON in the specified period of time.		

Classification	Jam Code		Causes	Resulting operation	Correction
⚠1 SK-114	J72-84	During operation	Saddle staple home position sensor 1 does not ON within specified time from saddle staple motor 1 forward rotation.	The FNS/main body stop immediately.	Remove jammed staple, if any.
	J72-85		Saddle staple home position sensor 2 does not ON within specified time from saddle staple motor 2.		
IT-101	J75-1	When idling	PS23 (IT exit sensor/U) or PS24 (IT exit sensor /L) went ON during idling.	—	Open the IT cover, remove any jammed paper.
	J75-10	During operation	PS23 (IT exit sensor/U) failed to turn ON within a predetermined time after PS2 (Fixing exit sensor) turning ON.	Printer section stops immediately.	
	J75-11		PS24 (IT exit sensor/L) failed to turn ON within a predetermined time after PS2 (Fixing exit sensor) turning ON.		
	J75-12		PS2 (Fixing exit) failed to turn OFF within a predetermined time after PS23 (IT exit sensor /U) or PS24 (IT exit sensor/L) turning ON.		
	J75-13		The IT door open jam PS25 (IT door sensor) went OFF during copying/printing.		
Paper feed	J81	When idling	PS1 (Registration sensor) ON during idling state.	—	Open the ADU door, remove any jammed paper.
	J82		PS105 (Paper feed sensor/L) ON during idling state.		Open the DB conveyance door, remove jammed paper. If paper is jammed in the main body: open the ADU door, remove the jammed paper.
	J83		PS155 (Paper feed sensor) ON during idling state.		Open the LT top cover, remove any jammed paper.
Paper exit	J90		PS2 (Fixing exit sensor) ON during idling state.		Open the ADU door, remove any jammed paper.

Classification	Jam Code	Causes		Resulting operation	Correction
ADU conveyance	J92	During operation	PS1 (Registration sensor) failed to turn ON within a predetermined time after start of ADU reversal.	Printer section stops immediately.	Open the ADU door, remove any jammed paper.
	J97-1		PS4 (ADU sensor) failed to turn ON within a predetermined time after PS2 (Fixing exit sensor) ON.		
	J97-2		PS4 (ADU sensor) failed to turn OFF within a predetermined time after turning ON.		
	J100	When idling	PS4 (ADU sensor) ON during idling state.	—	

4. ERROR CODE LIST

4.1 Error Code List

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	Communication abnormalities	F10-1	Communication error at CB (Main body control board) Failure in serial communication between the SCB (System control board) and CB (Main body control board).	The main body stops immediately, and the RL1 (Main) turn OFF.	CB (Main body control board) SCB (System control board)
③		F10-2	Communication error at CB (Main body control board) Serial communication error to the sub CPU in the CB, receiving command error, and platen operation sequence error.		CB (Main body control board)
		F10-3	Communication error between the CB (Main body control board) and DBDB (DB drive board).		CB (Main body control board) DBDB (DB drive board)
		F10-4	Sub-CPU A/D conversion error Two consecutive failures to respond to CB (Main body control board) A/D conversion request.		CB (Main body control board)
	Paper feed tray abnormalities	F18-1	Error in main body upper tray up PS10 (Upper limit sensor/L) failed to turn ON within a predetermined time after M7 (Tray motor /U) ON.		CB (Main body control board) M7 (Tray motor/U) PS7 (Upper limit sensor/U)
		F18-2	Error in main body lower tray up PS10 (Upper limit sensor/L) failed to turn ON within a predetermined time after M8 (Tray motor/L) ON.		CB (Main body control board) M8 (Tray motor/L) PS10 (Upper limit sensor/L)
		F18-3	Error in DB upper tray up PS102 (Tray upper limit sensor/3) failed to turn ON within a predetermined time after M101 (Tray up drive motor/3) ON.		DBDB (DB drive board) M101 (Tray up drive motor/3) PS102 (Tray upper limit sensor/3)
Main body	Paper feed tray abnormalities	F18-4	Error in DB lower tray/LCT tray up PS107 (Tray upper limit sensor/4) failed to turn ON within a predetermined time after M102 (Tray up drive motor/4) ON.	The main body stops immediately, and the RL1 (Main) turn OFF.	DBDB (DB drive board) M102 (Tray up drive motor/4) PS107 (Tray upper limit sensor/4)
		F18-5	Error in LT tray up PS152 (Tray upper limit sensor) failed to turn ON within a predetermined time after M151 (Tray up drive motor) ON.		LTDB (LT drive board) M151 (Tray up drive motor) PS152 (Tray upper limit sensor)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	Drum-area abnormalities	F22-1	Internal overheating The temperature at the outside of the drum reached or exceeded 136°F.		TCSB (Toner control sensor board) FM4 (Internal cooling fan/1) FM7 (Internal cooling fan/2) (7145 only)
③		F23-1	PCL connector detached When the PCL was being turned ON prior to the start of initial charging, a PCL abnormality was detected 15 times in a row at the specified intervals after the specified period of time.		PCL (Pre-charging exposure lamp) connector CB (Main body control board)
	High voltage power error	F26-1	L detection data error When the L detection output is greater than 3.0V.		TDS (Toner density sensor) CB (Main body control board)
		F26-2	Abnormal output from TDS (Toner density sensor) Maximum TDS output voltage failed to exceed 1.0V.		
		F26-3	Abnormal output from TDS (Toner density sensor) TDS output ripple voltage failed to reach 0.5V		
		F26-4	Toner density abnormality If L detection power exceeds 2.6V prior to toner out detection by the TLD (Toner level sensor), the automatic toner supply feature should restore the toner density. This error occurs if this feature fails to restore the density.		TLD (Toner level sensor) Toner supply unit Load the toner bottle again
Main body	High voltage power error	F28-1	Charging abnormality When the EM signal (charge_em 1) is detected 5 times at the specified intervals.	If any copying operation is being made, stop the main body after completion of paper exit. Turn the RL1 (Main) off.	Charging corona HV (High voltage power) CB (Main body control board)
		F28-2	Transfer lightning abnormality When the EM signal (trans_em) is detected 3 times at the specified intervals, this phenomenon occurs 5 times in 1 job.	The main body stops immediately, and the RL1 (Main) turn OFF.	Transfer corona section HV (High voltage power) CB (Main body control board)

Classification	Warning code	Causes	Resulting operation	Estimated abnormal parts
	F28-3	Separation lightning abnormality When the EM signal (separate_em) is detected 3 times at the specified intervals, this phenomenon occurs 5 times in 1 job.	The main body stops immediately, and the RL1 (Main) turn OFF.	Separation corona HV (High voltage power) CB (Main body control board)
High fixing temperature abnormalities	F34-1	High fixing temperature abnormality (TH1) The TH1 (Fixing temperature sensor/1) detects a temperature over 457°F continuously for a specified period of time.	The main body stops immediately, and the RL1 (Main) turn OFF. Acceptance of all keys is disabled.	TH1 (Fxing temperature sensor/1) TH2 (Fxing temperature sensor/2) L2 (Fixing heater lamp/1) L3 (Fixing heater lamp/2) CB (Main body control board) DCPS (DC power supply) ⚠**WARNING** • **When F34-**, F35-** or F36-** (fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0. If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire.**
	F34-2	High fixing temperature abnormality (TH2) The TH2 (Fixing temperature sensor/2) detects a temperature over 457°F continuously for a specified period of time.		
Low fixing temperature abnormalities	F35-1	Low fixing temperature abnormality (L2 burnt out) When turning on electricity to the L2 (Fixing heater lamp/1) for more than the specified period of time while in idling.		

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③	Main body	Low fixing temperature abnormalities	F35-2	Low fixing temperature abnormality (L2 burnt out) In other than warming-up, the TH1 (Fixing temperature sensor/1) elapses for more than the specified period of time in a temperature below 329°F (7145)/320°F (except the 7145).	The main body stops immediately, and the RL1 (Main) turn OFF. Acceptance of all keys is disabled.	TH1 (Fxing temperature sensor/1) TH2 (Fxing temperature sensor/2) L2 (Fixing heater lamp/1) L3 (Fixing heater lamp/2) CB (Main body control board) DCPS (DC power supply) ⚠**WARNING** • **When F34-**, F35-** or F36-** (fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0. If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire.**
③			F35-3	TH1 (Fxing temperature sensor/1) low temperature abnormality • In warming up, when the temperature detected by the TH1 at the start of turning on electricity to the L2 (Fixing heater lamp/1) is below 320°F (7145)/302°F (except the 7145), the difference between the TH1 temperature at the time of turning on electricity to the L2 and the TH1 temperature after the elapse of the specified period of time does not reach the specified value. • When the temperature detected by the TH1 at the start of turning on electricity to the L2 is above 320°F (7145)/302°F (except the 7145), the TH1 temperature does not reach the warming-up completion temperature in the specified period of time after the start of turning on electricity to the L2.		
			F35-4	Low fixing temperature abnormality (L3 burnt out) When turning on electricity to the L3 (Fixing heater lamp/2) for a specified period of time during in idling.		

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③	Main body	Low fixing temperature abnormalities	F35-5	Low fixing temperature abnormality (L3 burnt out) In other than warming up, the TH2 (Fixing temperature sensor/2) elapses for more than the specified period of time in a temperature below 329°F (7145)/320°F (except the 7145).	The main body stops immediately, and the RL1 (Main) turn OFF. Acceptance of all keys is disabled.	TH1 (Fxing temperature sensor/1) TH2 (Fxing temperature sensor/2) L2 (Fixing heater lamp/1) L3 (Fixing heater lamp/2) CB (Main body control board) DCPS (DC power supply) ⚠**WARNING** • **When F34-**, F35-** or F36-** (fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0. If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire.**
③			F35-6	TH2 (Fxing temperature sensor/2) low temperature abnormality • In warming up, when the temperature detected by the TH2 at the start of turning on electricity to the L3 (Fixing heater lamp /2) is below 320°F (7145)/302°F (except the 7145), the difference between the TH2 temperature at the start of turning on electricity to the L3 and the TH2 temperature after the elapse of the specified period of time does not reach the specified value. • When the temperature detected by the TH2 at the start of turning on electricity to the L3 (Fixing heater lamp/2) is above 320°F (7145)/302°F (except the 7145), the TH2 temperature does not reach the warming-up completion temperature in the specified period of time after the start of turning on electricity to the L3.		
③			F35-7	Fixing heat roller wrapping jam failure (TH1) While in copying, the TH1 (Fixing temperature sensor/1) detects a condition in which the temperature is lower than the specified one as compared with the temperature taken the specified period of time previously.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③ Main body	Low fixing temperature abnormalities	F35-8	Fixing heat roller wrapping jam failure (TH2) While in copying, the TH2 (Fixing temperature sensor/2) detects a condition in which the temperature is lower than the specified one as compared with the temperature taken the specified period of time previously.	The main body stops immediately, and the RL1 (Main) turn OFF. Acceptance of all keys is disabled.	TH1 (Fxing temperature sensor/1) TH2 (Fxing temperature sensor/2) L2 (Fixing heater lamp/1) L3 (Fixing heater lamp/2) CB (Main body control board) DCPS (DC power supply) ⚠**WARNING** • **When F34-**, F35-** or F36-** (fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0. If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire.**
		F35-9	TH1 (Fxing temperature sensor/1) contact failure In warming up, when the temperature detected by the TH2 (Fixing temperature sensor/2) reaches the Ready temperature earlier than the temperature detected by the TH1, the temperature detected by the TH1 does not reach the Ready temperature in the specified period of time after the temperature detected by the TH2 reaches the Ready temperature.		
		F35-10	TH2 (Fxing temperature sensor/2) contact failure In warming up, when the temperature detected by the TH1 (Fixing temperature sensor/1) reaches the Ready temperature earlier than the temperature detected by the TH2, the temperature detected by the TH2 does not reach the Ready temperature in the specified period of time after the temperature detected by the TH1 reaches the Ready temperature.		
	Sub CPU fixing sensor abnormalities	F36-1	TH1 (Fxing temperature sensor/1) high temperature abnormality (Sub CPU detection) In the sub CPU, the TH1 detects a temperature above 457°F for the specified period of time.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	Sub CPU fixing sensor abnormalities	F36-2	TH1 (Fxing temperature sensor/1)open abnormality (Sub CPU detection) In the sub CPU, the TH1 detects a temperature from 18°F to -4°F continuously for the specified period of time.	The main body stops immediately, and the RL1 (Main) turn OFF. Acceptance of all keys is disabled.	TH1 (Fxing temperature sensor/1) TH2 (Fxing temperature sensor/2) L2 (Fixing heater lamp/1) L3 (Fixing heater lamp/2) CB (Main body control board) DCPS (DC power supply) ⚠**WARNING** • **When F34-**, F35-** or F36-** (fixing temperature related abnormality) occurs, be sure to repair a defective part before setting the 25 DIPSW 3-1 to 0. If the 25 DIPSW 3-1 is set to 0 without repairing a defective part, this may cause a fire.**
		F36-3	TH2 (Fxing temperature sensor/2) high temperature abnormality (Sub CPU detection) In the sub CPU, the TH2 detects a temperature above 457°F for the specified period of time.		
		F36-4	TH2 (Fxing temperature sensor/2) open abnormality (Sub CPU detection) In the sub CPU, the TH2 detects a temperature from 18°F to -4°F continuously for the specified period of time.		
③	Scanner abnormalities	F41-1	M2 (Scanner motor) drive abnormality Occurs at exposure unit initial search or at return scan if PS14 (Scanner home position sensor) fails to turn ON within a predetermined time.	Scanner stops immediately.	M2 (Scanner motor) SCDB (Scanner drive board) (7145 only) CB (Main body control board)
		F43-1	L1 (Exposure lamp) abnormality After the L1 is turned ON, an L1 abnormality signal is detected continuously after the elapse of the specified period of time.		L1 (Exposure lamp)
	Image control abnormalities	F46-1	Laser driver abnormality Caused by overcurrent in laser output.	The main body stops immediately, and the RL1 (Main) turn OFF.	Laser diode LDB (LD drive board)
		F46-8	Laser index abnormality Occurs if index period is different from expected value.		INDEX (Index sensor board) M5 (Polygon motor) SCB (System control board) Laser route
		F46-10	AOC abnormality AOC counter overflow	Scanner stops immediately.	ADB (A/D conversion board) L1 (Exposure lamp) INV1 (Exposure lamp inverter) SCB (System control board) Exposure unit stop position
		F46-11	AGC abnormality AGC counter overflow		

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	Main body	Image control abnormalities	F49-4	INDEX (Index sensor board) connection abnormality	The main body stops immediately, and the RL1 (Main) turn OFF.	INDEX (Index sensor board) SCB (System control board)
			F49-6	ADB (A/D conversion board) connection abnormality	Scanner stops immediately.	CCD on ADB (A/D conversion board) SCB (System control board) Flex wiring harness
③		Motor speed abnormalities	F51-2	M11 (Fixing motor) speed abnormality Motor lock detection (LOCK) signal has been detected 5 times at the specified intervals.	The main body stops immediately, and the RL1 (Main) turn OFF.	M11 (Fixing motor) CB (Main body control board)
③			F51-4 (7145)	M3 (Developing motor) speed abnormality Motor lock detection (LD) signal has been detected 5 times at the specified intervals.		M3 (Developing motor) CB (Main body control board)
③			F51-5 (7145)	M1 (Main motor) speed abnormality Motor lock detection (LOCK) signal has been detected 5 times at the specified intervals.		M1 (Main motor) CB (Main body control board)
			F51-6	M5 (Polygon motor) speed abnormality M5 was not locked 7 sec. after starting to run.		M5 (Polygon motor) CB (Main body control board)
③		Fan lock abnormalities	F52-1	FM3 (Internal dehumidifying fan) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal in the succeeding two retries.		FM3 (Internal dehumidifying fan/1) CB (Main body control board)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③ Main body	Fan lock abnormalities	F52-2 (7145/ 7235)	FM2 (Fixing cooling fan/1) abnormality When the motor lock signal (LOCK) was detected at the specified cycle with [H] detected continuously, the cooler has been judged abnormal at the succeeding two retries.	The main body stops immediately, and the RL1 (Main) turn OFF.	FM2 (Fixing cooling fan) CB (Main body control board)
		F52-3	FM4 (Internal cooling) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal at the succeeding two retries.		FM4 (Internal cooling fan/1) CB (Main body control board)
		F52-4	FM5 (Developing suction fan) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal at the succeeding two retries.		FM5 (Developing suction fan) CB (Main body control board)
		F52-5	FM6 (Internal dehumidifying fan/ 2) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal at the succeeding two retries.		FM6 (Internal dehumidifying fan/2) CB (Main body control board)
		F52-6	Printer controller cooling fan abnormality When an error status signal was sent from the printer controller.		Printer controller
		F52-7	FM301 (Cooling fan) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal at the succeeding two retries.		FM301 (Cooling fan) CB (Main body control board)

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③	Main body	Fan lock abnormalities	F52-8 (7145)	FM7 (Internal cooling fan/2) abnormality When the motor lock signal (EM) was detected at the specified cycle with [H] detected continuously, the fan has been judged abnormal at the two succeeding retries.	The main body stops immediately, and the RL1 (Main) turn OFF.	FM7 (Internal cooling fan/2) CB (Main body control board)
			F52-9	HD-103 cooling fan abnormality When a lock signal was detected while in the HDD operation.		HD-103 Cooling fan SCB (System control board)
③			F52-10 (7235)	FM7 Polygon cooling fan abnormality When motor lock signal (EM) was detected at the specified cycle with [H] also detected continuously, the fan was judged to be abnormal after being twice retried.		FM7 (Polygon cooling fan) CB (Main body control board)
		Image control communication abnormalities	E56-1	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). Occurs if SCB fails to responds when SW2 (Sub power switch) turns ON.	Engine power supply OFF	SCB (System control board) CB (Main body control board)
			E56-2	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). While on standby, the process Ready signal has not been detected for the specified period of time.		
			E56-3	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). While on standby, the scanner Ready signal has not been detected for the specified period of time.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	Image control communication abnormalities	E56-4	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). While on standby, the FNS Ready signal has not been detected for the specified period of time.	Engine power supply OFF	SCB (System control board) FNSCB (FNS control board) CB (Main body control board)
		E56-5	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). Platen-original size notification timeout.		SCB (System control board) CB (Main body control board)
	Operations unit control abnormalities	E56-6	Operation status error Memory access error at copy insertion.		SCB (System control board)
		E56-7	Operation management error Control error at panel manager		
		E56-8	Operation drawing error 1 Screen-data drawing mismatch		
		E56-9	Operation drawing error 2 Drawing-component data error		
		E56-10	Operation panel communication abnormality Communication error with the operating section CPU		SCB (System control board) OB (Operation board)
③	Image control communication abnormalities	E56-11 (Except the 7145)	Machine type judgement abnormality The type information of the SCB (System control board) is different from the type information of the CB (Main body control board).		SCB program
③		E56-12	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). There is no response from the engine after a signal is sent for periodic communication.		SCB (System control board) CB (Main body control board)

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	Main body	Image control communication abnormalities	E56-13	Communication abnormality between system-control of the SCB (System control board) and engine-control of the CB (Main body control board). The destination value RAM area on the engine side is unjustly rewritten.	Engine power supply OFF	SCB (System control board) CB (Main body control board)
③	FNS	FNS communication abnormalities (FS-112/113/114)	F70-1	FNS communication abnormality Failure in serial communication between the CB (Main body control board) and FNSCB (FNS control board).	The main body stops immediately, and the RL1 (Main) turn OFF.	CB (Main body control board) FNSCB (FNS control board)
		FS-112	F70-11	FS-112 flash-ROM abnormality Detected checksum error in FNS flash ROM.		FNSCB (FNS control board)
		FS-113	F77-1	M8 (Shift motor) drive abnormality • When starting to return to the home position, the PC10 (Shift home sensor) is not turned ON in the specified period of time after the M8 is turned ON. • When starting to move to the shift position, the PC10 is not turned OFF in the specified period of time after the M8 is turned ON.		M8 (Shift motor) PC10 (Shift home sensor) PC11 (Shift motor pulse sensor) PWB-A (Control board)
		FS-112	F77-2	• The PS711 (Tray upper limit sensor) is not turned ON in the specified period of time after the paper extractor starts to go up. • While in copying, the PS711 is not turned ON in the specified period of time after the M706 starts to go up. • Paper is not detected even after the paper detection operation is made 3 times.		M706 (Tray up drive motor) FNSCB (FNS control board) PS711 (Tray upper limit sensor) PS706 (Tray lower limit sensor)

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	FNS	FS-113	F77-2	M7 (Elevator motor) drive abnormality • While the elevate tray is going up, the PWB-F (Elevate tray top face sensor) is not turned OFF in the specified period of time after the M7 is turned ON. • While the elevate tray is going down, the M7 is locked. • The S2 (Elevate tray upper limit switch) or the S3 (Elevate tray lower limit switch) is turned ON in the specified period of time after the elevate tray starts to drive.	The main body stops immediately, and the RL1 (Main) turn OFF.	M7 (Elevator motor) PWB-A (Control board) PWB-F (Elevate tray top face sensor) S2 (Elevate tray upper limit switch) S3 (Elevate tray lower limit switch)
⚠1		FS-114	F77-2	M11-FN (Elevator motor) drive failure • During tray ascending, PC14-FN (Top face detection sensor) does not ON after specified time from M11-FN ON. • During tray descending, it does not reach the target position within specified time. • During tray descending, M11-FN is locked.		M11-FN (Elevator motor) PWB-A FN (Control board) PC15-FN (Top face detection sensor)
		FS-112	F77-3	M704 (Alignment motor /F) drive abnormality • The PS710 (Alignment HP sensor/F) cannot be attained in the specified period of time after the start of the alignment plate HP search. • The PS710 cannot be passed through in the specified period of time after the alignment plate starts to move to the size position.		M704 (Alignment motor/F) PS710 (Alignment plate HP sensor/F) FNSCB (FNS control board) Sensor wiring harness/2 Motor wiring harness/2

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
FNS	FS-113	F77-3	M5 (Alignment motor) drive abnormality • While in search of the home position, the PC9 (Alignment home sensor) is not turned ON in the specified period of time after the M5 is turned ON. • When the alignment operation starts, the PC9 is not turned OFF in the specified period of time after the M5 is turned ON.	The main body stops immediately, and the RL1 (Main) turn OFF.	M5 (Alignment motor) PWB-A (Control board) PC9 (Alignment home sensor)
⚠1	FS-114	F77-3	M4-FN (Alignment motor 1) driving failure • PC6-FN (Alignment home position sensor 1) does not ON within specified time from start of alignment plate HP searching. • PC6-FN does not OFF within specified time from start of alignment plate home position search.		M4-FN (Alignment motor 1) PWB-A FN (Control board) PC6-FN (Alignment home position sensor 1)
	FS-113	F77-4	M13 (Paper exit roller separation motor) drive abnormality • When the pressure position drive starts, the PC13 (Paper exit roller home sensor) is not turned ON in the specified period of time after the M13 is turned ON. • When the separation position drive starts, the PC13 is not turned OFF in the specified period of time after the M13 is turned ON.		M13 (Paper exit roller separation motor) PWB-A (Control board) PC13 (Paper exit roller home sensor)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
⚠1 FNS	FS-114	F77-4	M6-FN (Exit open/close motor) drive failure • After starting pressing position driving, PC12-FN (Exit roller home position sensor) does not ON within specified time from M6-FN ON. • After starting separation position driving, PC12-FN does not OFF within specified time from M6-FN ON.	The main body stops immediately, and the RL1 (Main) turn OFF.	PWB-A FN (Control board) M6-FN (Exit open/close motor) PC12-FN (Exit roller home position sensor)
	FS-112	F77-5	M707 (Paper pressure motor) drive abnormality The M707 does not make a turn in the specified period of time after it starts to operate.		M707 (Paper pressure motor) FNSCB (FNS control board) Sensor wiring harness/1
	FS-113	F77-5	M12 (Storage roller separation motor) drive abnormality • When the pressure position drive starts, the PC12 (Storage roller home sensor) is not truned on in the specified period of time after the M12 is turned ON. • When the separation position drive starts, the PC12 is not turned ON in the specified period of time after the M12 is turned ON.		M12 (Storage roller separation motor) PWB-A (Control board) PC12 (Storage roller home sensor)
	FS-112	F77-6	M705 (Stapler movement motor) abnormality • The PS708 (Stapler unit HP sensor) is not turned ON in the specified period of time after the start of the home position search. • The PS708 is not turned OFF in the specified period of time after the start of the movement to the 2-staple standby position.		FNSCB (FNS control board) M705 (Stapler movement motor) PS708 (Stapler unit HP sensor) Sensor wiring harness/2 Motor wiring harness/1

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
FNS	FS-113	F77-6	M6 (Staple movement motor) drive abnormality • The PC14 (Staple home sensor) is not turned ON in the specified period of time after the M13 is turned ON. • The home position cannot be passed through in the specified period of time after the start of the movement to the 1-staple position.	The main body stops immediately, and the RL1 (Main) turn OFF.	PWB-A (Control board) M6 (Staple movement motor) PC14 (Staple home sensor)
⚠1	FS-114	F77-6	M7-FN (Stapling unit moving motor) driving failure • PC10-FN (Staple home position sensor) does not ON within specified time from starting of HP search. • PC10-FN does not OFF when starting to move to 1-position stapling position.		M7-FN (Stapling unit moving motor) PWB-A FN (Control board) PC10-FN (Staple home position sensor)
	FS-112	F77-11	Stapler reversal abnormality The PS712 (Stapler HP sensor) cannot be attained in the specified period of time after the start of the reverse rotation of the M708 (Staple motor).		FNSCB (FNS control board) M708 (Staple motor) PS712 (Stapler HP sensor)
	FS-113	F77-11	Stapler /F drive abnormality • The home position cannot be passed through in the specified period of time after the start of the staple 2/F drive. • While in the staple 2/F drive, the home position cannot be attained in the specified period of time after the home position is turned OFF. • The home position cannot be attained in the specified period of time after the start of the reverse drive of the staple 2/F.		PWB-A (Control board) Staple motor 2

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	FNS	FS-113	F77-12	Stapler /R drive abnormality • The home position cannot be passed through in the specified period of time after the start of the staple1/R drive. • While in the staple1/F drive, the home position cannot be attained in the specified period of time after the home position is turned OFF. • The home position cannot be attained in the specified period of time after the start of the reverse drive of the staple1/F.	The main body stops immediately, and the RL1 (Main) turn OFF.	PWB-A (Control board) Staple motor 1
⚠1		FS-114	F77-12	Stapler drive failure • Staple motor does not move from home position within specified time from start of staple driving. • Staple motor does not reach the home position within specified time from start of staple reverse driving.		PWB-A FN (Control board) Staple motor
			F77-13	Saddle staple 1 drive failure • During driving of saddle staple motor 1, saddle staple does not move from home position within specified time. • During reverse driving of saddle staple motor 1, it does not reach the home position within specified time.		PWB-C SK (Control board) Saddle staple motor 1
			F77-14	Saddle staple 2 drive failure • During saddle staple motor 2 driving, it does not move from home position. • During reverse driving of saddle staple motor 2, it does not reach the home position within specified time.		PWB-C SK (Control board) Saddle staple motor 2

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	FNS	FS-112	F77-16	M703 (Alignment motor/R) abnormality • The PS709 (Alignment HP sensor/R) cannot be attained in the specified period of time after the start of the alignment plate HP search. • The PS709 cannot be passed through in the specified period of time after the alignment plate starts to move to the size position.	The main body stops immediately, and the RL1 (Main) turn OFF.	M703 (Alignment motor/R) PS709 (Alignment HP sensor/R) FNSCB (FNS control board) Sensor wiring harness/2 Motor wiring harness/1
⚠1			F77-18	FM701 (Cooling fan) drive abnormality The 701 detects lock for more than the specified period of time from the start of operation to the close of operation.		FM701 (Cooling fan) FNSCB (FNS control board) Motor wiring harness/2
⚠1		FS-114	F77-22	M13-SK (In & out guide motor) failure • During M13-SK driving (protrudes), PC23-SK (In & out guide home position sensor) does not OFF within specified time. • During M13-SK driving (moving aside), PC23-SK does not ON within specified time.ve to the size position.		PWB-C SK (Control board) M13-SK (In & out guide motor) PC23-SK (In & out guide home position sensor)
			F77-23	M14-SK (Layable guide motor) failure • After M14-SK (Layable guide motor) starts moving to the home position, PC26-SK (Layable guide home position sensor) does not ON within specified time from M14-SK ON. • After starting of movable guide, PC26-SK (Layable guide home sensor) does not OFF within specified time from M14-SK ON.		PWB-C SK (Control board) M14-SK (Layable guide motor) PC26-SK (Layable guide home position sensor)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
⚠1 FNS	FS-114	F77-24	Saddle exit roller drive failure • PC18-SK (Saddle exit open/ close motor) does not ON within specified time from press-operation starting of M9-SK (Saddle exit open/ close motor) . • PC18-SK does not OFF within specified time from M9-SK separation operation starting.	The main body stops immediately, and the RL1 (Main) turn OFF.	PWB-C SK (Control board) M9-SK (Saddle exit open/ close motor) PC18-SK (Saddle exit roller home position sensor)
		F77-25	M10-SK (Crease motor) drive failure During M10-SK driving, PC22-SK (Crease roller home position sensor) does not ON within specified time.		PWB-C SK (Control board) M10-SK (Crease motor) PC22-SK (Crease roller home position sensor)
		F77-26	M8-SK (Saddle exit motor) drive failure • Lock signal ON is continuously detected for the specified period within specified time from M8-SK drive start. • Lock signal OFF is continuously detected for the specified period within specified time from stopping of M8-SK drive signal.		PWB-C SK (Control board) M8-SK (Saddle exit motor)
		F77-27	Shutter drive failure • During M6-FN (Exit open/ close motor) driving (closing shutter), PC16-FN (Shutter home position sensor) does not ON within specified time. • During M6-FN driving (opening shutter) PC16-FN does not OFF within specified time.		6-FN (Exit open/close motor) PWB-A FN (Control board) PC16-FN (Shutter home position sensor)

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	FNS	FS-114	F77-28	M5-FN (Alignment motor 2) driving failure • PC7-FN (Alignment home position sensor 2) does not ON within specified time from starting of alignment plate home position search. • PC7-FN does not OFF within specified time from starting of alignment plate HP search.	The main body stops immediately, and the RL1 (Main) turn OFF.	M5-FN (Alignment motor 2) PWB-A FN (Control board) PC7-FN (Alignment home position sensor 2)
			F77-29	SL2-FN (Exit paddle solenoid) driving failure • PC11-FN (Exit paddle home position sensor) does not ON within specified time from SL2-FN ON (paddle move aside). • PC11-FN does not OFF within specified time from SL2-FN ON (during pressing paper).		L2-FN (Exit paddle solenoid) PWB-A FN (Control board) PC11-FN (Exit paddle home position sensor)
③		FS-113	F77-53	M11 (Punch motor) drive abnormality The PC15 (Punch motor pulse sensor) does not turn OFF the specified period of time after the M11 turns on.		M11 (Punch motor) PC15 (Punch motor pulse sensor)
			F77-54	M14 (Punch movement motor) drive abnormality (inch system only) • When starting the punch 2-hole position switch drive, the S4 (punch hole position switch) is not turned ON in the specified period of time after the M14 is turned ON. • When starting the punch 3-hole position switch drive, the S4 is not turned OFF in the specified period of time after the M14 is turned ON.		PWB-A FN (Control board) Punch motor Punch position sensor 1 Punch position sensor 2
③		FS-114	F77-55	Punch motor drive failure During driving punch motor, punch position sensor 1,2 do not OFF within specified time.		PWB-A (Control board) M14 (Punch movement motor) S4 (Punch hole position switch)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	Nonvolatile memory abnormalities	F80-1	Nonvolatile memory abnormality *1	Stop immediately	PRMB (Parameter memory board)
		F80-2	Nonvolatile memory abnormality *1		SCB (System control board)
		F80-3	Nonvolatile memory abnormality *1		PRMB (Parameter memory board) SCB (System control board)
		F80-4	Nonvolatile memory abnormality *1		PRMB (Parameter memory board)
		F80-5	Nonvolatile memory abnormality *1		SCB (System control board)
③	Flash ROM abnormalities	F81-1	Flash ROM abnormality Detected checksum error in SCB (System control board)'s FlashROM.	Engine power supply OFF	SCB program
		F81-2	Software abnormality CB (Main body control board) and SCB (System control board) have non-matching software device types.		CB program SCB program
	OS error	F81-4	An OS error occurs in the image control unit in the SCB (System control board).		SCB (System control board)
HDD	HDD initialization abnormality	F82-1	A physical abnormality occurs in the HDD and a checksum abnormality in the DRAM occur.		SCB (System control board) HDD (Hard disk)
	HDD abnormalities	F82-2	Document manager initialization abnormality		HDD (Hard disk) Reformatting of the HDD
	HDD error	F82-3	I-FAX report initializing error		HDD (Hard disk) HDD reformat CB (Main control board)
Main body	Access abnormalities	E82-10	Document manager access abnormality (overall) The count of E82-11 to E82-17 is an overall count for E82-10.		SCB (System control board)
		E82-11	Document manager access abnormality VxWorks error		
		E82-12	Document manager access abnormality Job control access error		
		E82-13	Document manager access abnormality Image conversion job access error		

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	Main body	Access abnormalities	E82-14	Document manager access abnormality Fax communication job access error	Engine power supply OFF	SCB (System control board)
			E82-15	Document manager access abnormality Net communication job access error		
			E82-16	Document manager access abnormality File storage job access error		
			E82-17	Document manager access abnormality Print job access error		
⚠1			E82-18	Document manager access error FaxFile document conversion job access error		
⚠1		HDD error	E82-50	I-FAX report initializing error		
⚠1		Access error	E82-51	I-FAX report access error (overall) Job control access error 1. * In the count, E82-52 count is also included.		
			E82-52	I-FAX report access error Job control access error 2		
	Network	Network abnormalities	F85-1	Network device abnormality NetworkDriver has not been registered for some reason (including hardware factors). Copier/Fax can be used.	Stop the Network I/O	SCB (System control board) NetWork section
			F85-2	IEEE1284 device abnormality IEEE1284 (Parallel) Driver has not been registered for some reasons (including hardware factors). Copier/Fax can be used.	Stop the IEEE1284 (Parallel) I/O	SCB (System control board) IEEE1284 (Parallel) section
			F85-3	USB device abnormality USBDriver has not been registered for some reasons (including hardware factors). Copier/Fax can be used.	Stop the USBI/O	SCB (System control board) USB section
			E85-11	Network protocol stack initialization abnormality The resetting of the Network protocol stack has been failed.	Stop the Network function	SCB (System control board) NetWork section

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
	Network	Network abnormalities	E85-12	Network reset abnormality The resetting of the Network protocol stack has been failed.	Stop the Network function	SCB (System control board) NetWork section
			E85-13	Network print operation abnormality Software abnormality in the Network print JOB sequence.	Stop the Network print function	SCB (System control board) JOB, NetWork section
			E85-14	Network print operation abnormality Software abnormality when receiving a Network print signal.		
			E85-15	Network print operation abnormality Software abnormality when receiving a Network print (AppleTalk) signal.		
			E85-17	Network scan operation abnormality Software abnormality in the Network scan JOB sequence.	Stop the Network scan function	
			E85-18	Network scan operation abnormality Software abnormality when sending a Network scan signal.		SCB (System control board) NetWork section
			E85-20	MIB module abnormality MIB software abnormality	Stop the MIB function	
			E85-21	IPP module abnormality IPP software abnormality	Stop the IPP function	
			E85-22	FTP server module abnormality FTP server software abnormality	Stop the FTP server function	
			E85-23	WebTool module abnormality WebTool software abnormality	Stop the WebTool function	
③			E85-24	eKRDS transmission operation abnormality Software abnormality while in transmission operation	Network eKRDS Sending function stop	
③			E85-25	eKRDS reception operation abnormality Software abnormality while in reception operation	Network eKRDS Receiving function stop	
③			E85-30	LDAP module abnormality • No memory obtainable. • Improper operation on MIO LDAP.	LDAP function stop	
③	HDD	HDD abnormality	E86-6 (7145)	FAX file initialization abnormality	Stop the HDD function	HDD (Hard disk) Reformatting of the HDD

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
IP	Printer board abnormalities	F87-1	Printer controller not identified. Printer controller did not respond. Copier/Fax can be used.	Printer cannot be used.	Printer controller
		F87-2	Printer controller abnormality Error F87-1 occurred 3 times in succession.	Engine power supply OFF	
		F87-3	Printer controller HDD abnormality HDD cannot be accessed.		
Main body	System control communication abnormalities	E88-1	Image abnormality Abnormality detected in image processing at system control side.	If any copying operation is being made, stop the main body after completion of paper exit. Turn the RL1 (Main) off.	SCB (System control board)
		E89-1	Copy sequence abnormality Abnormality in job object pointer. (Could not get page-control object for some reason.)	Engine power supply OFF	SCB (System control board) Engine section
		E89-2	Copy sequence abnormality Abnormality in memory copy sequence. (Cause unknown)		
		E89-3	Copy sequence abnormality Abnormality in through copy sequence (FCOT). (Cause unknown)		
		E89-4	Copy sequence abnormality Memory scanner did not complete stop. (Notification of stop completion not received from engine.)		
		E89-5	Copy sequence abnormality Memory printer did not complete stop. (Notification of stop completion not received from engine.)		
		E89-6	SW2 (Sub power switch) OFF processing wait timeout	Engine power supply OFF All indicators on the operation panel light.	SCB (System control board)

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	System control communication abnormalities	E89-11	Carriage return not possible error Abnormality when setting a timer (Count is made at E89-6.)	Engine power supply OFF	SCB (System control board)
		E89-12	Carriage return not possible error Abnormality when canceling a timer (Count is made at E89-6.)		
		E89-21	Carriage return not possible error Operation abnormality when copying interrupt. (Printer user job) (Count is made at E89-6.)		
		E89-22	Carriage return not possible error Operation abnormality when copying interrupt. (Printer job 0) (Count is made at E89-6.)		
		E89-23	Carriage return not possible error Operation abnormality when copying interrupt. (Printer job 1) (Count is made at E89-6.)		
		E89-24	Carriage return not possible error Operation abnormality when copying interrupt. (FCOT printer user job) (Count is made at E89-6.)		
		E89-25	Carriage return not possible error Operation abnormality when copying interrupt. (FCOT user job) (Count is made at E89-6.)		
		E89-26	Carriage return not possible error Operation abnormality when copying interrupt. (Copy print job) (Count is made at E89-6.)		
		E89-27	Carriage return not possible error Operation abnormality when copying interrupt. (Copy print job 0) (Count is made at E89-6.)		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	System control communication abnormalities	E89-28	Carriage return not possible error Operation abnormality when copying interrupt. (Copy print job 1) (Count is made at E89-6.)	Engine power supply OFF	SCB (System control board)
		E89-31	Abnormality when deleting task 0 due to the generation of queue 1 not possible.		
		E89-32	Abnormality when deleting queue 0 due to the generation of queue 1 not possible.		
		E89-33	Abnormality when deleting queue n due to the generation of task n not possible.		
		E89-34	Abnormality when deleting task 0 due to the generation of task 1 not possible.		
		E89-35	Abnormality when deleting queue 0 due to the generation of task 1 not possible.		
		E89-36	Abnormality when starting task n		
		E89-37	Abnormality when deleting task n		
		E89-38	Abnormality when deleting queue n		
		E89-41	Scheduling abnormality (queue operation abnormality) when FAX print cannot be started due to memory shortage.		
		E89-42	Scheduling abnormality (message transmission error) when FAX print cannot be started due to memory shortage.		
		E89-43	Printer scheduling abnormality (message transmission error) due to memory being full.		
		E89-51	Operation abnormality when copying interrupt (scanner scan user job)		
		E89-52	Operation abnormality when copying interrupt (scanner mixed scan job 0)		
		E89-53	Operation abnormality when copying interrupt (scanner Z-folding scan job 0)		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
Main body	System control communication abnormalities	E89-54	Operation abnormality when copying interrupt (scanner normal scan job 0)	Engine power supply OFF	SCB (System control board)
		E89-55	Operation abnormality when copying interrupt (scanner scan job 1)		
		E89-56	Operation abnormality when copying interrupt (FAX scan user job)		
		E89-57	Operation abnormality when copying interrupt (FAX mixed scan job 0)		
		E89-58	Operation abnormality when copying interrupt (FAX Z-folding scan job 0)		
		E89-59	Operation abnormality when copying interrupt (FAX normal scan job 0)		
		E89-60	Operation abnormality when copying interrupt (FAX scan job 1)		
		E89-61	Operation abnormality when copying interrupt (FCOT scan user job)		
		E89-62	Operation abnormality when copying interrupt (FCOT scan job)		
		E89-63	Operation abnormality when copying interrupt (copy scan user job)		
		E89-64	Operation abnormality when copying interrupt (copy mixed scan job 0)		
		E89-65	Operation abnormality when copying interrupt (copy Z-folding scan job 0)		
		E89-66	Operation abnormality when copying interrupt (copy normal scan job 0)		
		E89-67	Operation abnormality when copying interrupt (copy scan job 1)		
		E89-80	Suspend occurence CPU hang up due to software bug		
		E89-81	Exception occurence CPU hang up due to software bug		

*1 Parameter memory board abnormality display priority. For these error codes, the priority for display has been specified. When two or more errors occur at the same time, they are displayed in the following order:

1.F80-4
2.F80-5
3.F80-3
4.F80-1
5.F80-2

Note:

△3 • For FAX related error codes, see “FK/FL Service Manual”.

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
⚠3 Network	Network abnormalities	N14	I-FAX reception abnormality • An attached file other than TIFF has been received. • An attached file has been received in a wrong format. Or, an attached file in a coding format that is not supported has been received. • The number of attached files has been in excess of the upper limit of 10 files. • The number of pages of the mails received has been in excess of the upper limit of 1000 pages.	Stop the I-FAX function	SCB (System control board) Network section JOB
		N14-00	eKRDS reception abnormality When an time-out condition occurs while an E-Mail is being received. (In this case, the mail is deleted from the mail box.)	Do not stop the functions	
		N14-02	eKRDS reception abnormality When the format of an E-Mail received is found illegal due to the cause other than the number of attached files being in excess of its upper limit.		
		N14-04	eKRDS reception abnormality When the number of attached files in the E-Mail received is in excess of the upper limit of 255. (Since a wrong mail has been received, the mail is deleted from the mail box.)		
		N24	DNS error The LDAP server address was specified incorrectly.	Stop the LDAP function	SCB (System control board) Network section
		N25	Connection error The connection from the LDAP server was rejected.		
		N26	Connection error The LDAP server is corresponding to any version other than 3.0.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③ Network	Network abnormalities	N27	Connection error The LDAP server does not support the SASL authorization system.	Stop the LDAP function	SCB (System control board) Network section
		N28	LDAP connection error The MIO does not support the SASL authorization system which has been supported by the server.		
		N29	LDAP connection error The log-in name or password is incorrect.	Stop the Network scan (SMB) function	
		N30	Network scan operation abnormality The protocol is not initialized.		
		N31	Network scan operation abnormality The connection has been cut off while in authorization.		
		N32	Network scan operation abnormality The host name is incorrect.		
		N33	Network scan operation abnormality The user name or user password is incorrect.		
		N34	Network scan operation abnormality The folder name is incorrect.		
		N35	Network scan operation abnormality The log-in failed due to the SMB protocol error other than N30 to N34.		
		N36	Network scan operation abnormality The file name is incorrect.		
		N37	Network scan operation abnormality The file or folder attribute is erroneous.		
		N38	Network scan operation abnormality The medium of the transfer address is erroneous.		
		N39	Network scan operation abnormality Resetting was made while in transfer.		
		N40	Network scan operation abnormality Shortage of the buffer.		
		N41	Network scan operation abnormality The MIO is busy.		
		N42	Network scan operation abnormality The server has no free space.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③ Network	Network abnormalities	N43	Network scan operation abnormality The connection was cut off while in transfer.	Stop the Network scan (SMB) function	SCB (System control board) Network section
		N44	Network scan operation abnormality The server has run out of free space while in transfer.		
		N45	Network scan operation abnormality An error occurred with the file system of the server while in transfer.		
		N50	Network scan operation abnormality The SMTP server address is not set.	Stop the Network scan function (E-Mail)	
		N52	Network scan operation abnormality The protocol has not been initialized.		
		N53	Network scan operation abnormality The Network connection route is abnormal.		SCB (System control board) Network cable
		N54	Network scan operation abnormality • The server is not started. • The port number is wrong. • An erroneous POP server authentication has been made for “POP before SMTP.” • The SMTP server connection is abnormal. • There is not sufficient free space left in the SMTP server.		SCB (System control board) Network section
		N55	Network scan operation abnormality The connection is abnormal.		SCB (System control board) Network cable
		N56	Network scan operation abnormality The communication time has run out.		
		N57	Network scan operation abnormality • The POP reception is being made in the same account. • There is not sufficient free space left in the SMTP server.		SCB (System control board) Network section JOB
		N58	Network scan operation abnormality The network connection route is abnormal. TCP/IP setting is disable.		SCB (System control board) Network cable
		N59	Network scan operation abnormality The SMTP server connection is abnormal.		SCB (System control board) Network section

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③	Network	Network abnormalities	N60	Network scan operation abnormality • The SMTP server connection is abnormal. • The length of time set for “POP before SMTP” is longer than the retention time approved for the POP server.	Stop the Network scan function (E-Mail)	SCB (System control board) Network section
			N61	Network scan operation abnormality • An attached file in excess of the maximum size for the SMTP server has been sent. • The SMTP server was down while an attached file was being sent.		
			N62	Network scan operation abnormality • A reset operation has been made while in the network scan operation.		JOB
			N63	Network scan operation abnormality • The size of an attached file is in excess of the maximum size for the SMTP server. • There is not sufficient free space left in the SMTP server.		SCB (System control board) Network section
			N64	Network scan operation abnormality Shortage of the buffer.		
			N65	Network scan operation abnormality The EPNET Mail has been in contention with other mails for sending.		
			N66	Network scan operation abnormality The “From” address has been specified in the domain that is not allowed for the SMTP server.		
			N70	LDAP connection error The MIO has not completed the preceding transaction.	Stop the LDAP function	
			N71	LDAP connection/search error A request for cancel has been issued by the client.		
			N72	LDAP search error The route of retrieval has been incorrectly specified.		

Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③ Network	Network abnormalities	N73	LDAP search error The results of retrieval are in excess of the maximum number.	Stop the LDAP function	SCB (System control board) Network section
		N74	LDAP search error The LDAP server has been set the Referral setting and cannot access to the reference data.		
		N75	LDAP connection/search error A time-out occurred due to the LDAP server being not found.		
		N76	LDAP connection error Cannot connect to the LDAP server. (At serch operation)		
		N77	LDAP parameter abnormality No bind can be made successfully due to parameter abnormality.		
		N80	Network scan operation abnormality • The IP address of the FTP parameter is abnormal. • The length of the file name is in excess of the upper limit of 32 bytes. • The descriptor is illegal.	Stop the Network scan function (FTP)	
		N81	Network scan operation abnormality • The server is not started. • The port number is wrong. • The IP address is wrong. • The proxy server connection is abnormal.		SCB (System control board) Network section Network cable
		N82	Network scan operation abnormality • The FTP server was down while data was being sent.		SCB (System control board) Network section
		N83	Network scan operation abnormality The network connection route is abnormal.		SCB (System control board) Network section Network cable
		N84	Network scan operation abnormality The log-in name and the password are illegal.		SCB (System control board) Network section
		N86	Network scan operation abnormality • The network connection route is abnormal. • The server supporting the “Passive” mode has not been set to “Passive.”	Stop the Network scan function (FTP)	SCB (System control board) Network section Network cable

	Classification		Warning code	Causes	Resulting operation	Estimated abnormal parts
③	Network	Network abnormalities	N87	Network scan operation abnormality • The FTP server directory is abnormal. • The same file as the sending file has been open on the FTP server.	Stop the Network scan function (FTP)	SCB (System control board) Network section
			N88	Network scan operation abnormality The reset operation was made while in the network scan operation.		
			N89	Network scan operation abnormality There is not sufficient free space left in the FTP server.		
			N91	Network scan operation abnormality Shortage of the buffer.		
			N92	Network scan operation abnormality The network is in the busy condition.		

4.2 About Abnormal Units Isolation

As for the abnormalities listed below, the device can be used temporarily by separating the defective unit. Pressing the auto reset key while an error code appears and turning ON/OFF the SW2 (Sub power switch) allows you to detach the defective unit as a software and use other functions. However, when the SW2 is turned ON or OFF without removing the cause of trouble, the abnormality will be detected again with an error code displayed. (Function effective for once only)

△3

Error code	Error	Unit to be cut off	Remarks
18-1	Error in main body upper tray up	Main body upper tray	Tray can not be selected.
18-2	Error in main body lower tray up	Main body lower tray	Tray can not be selected.
18-3	Error in DB upper tray up	DB upper tray	Tray can not be selected.
18-4	Error in DB lower tray/LCT tray up	DB lower tray/LCT tray	Tray can not be selected.
18-5	Error in LT tray up	LT tray	Tray can not be selected.
70-1, 70-9	FNS abnormality	FNS	FNS can not be used; FNS must be removed.
70-11	FNS abnormality	FNS	FNS can not be used; FNS must be removed. (FS-112)
77-2	Tray up/down drive abnormality	FNS	FNS can not be used; FNS must be removed. (FS-112)
77-5	Pressure motor drive abnormality	FNS	FNS can not be used; FNS must be removed. (FS-112)
77-17	Fan motor drive abnormality	FNS	FNS can not be used; FNS must be removed.
77-3, 77-16	Error in FNS alignment plate	FNS stack section	Only straight exit remains available. (FS-112)
77-6, 77-11	FNS stapler error	FNS stack section	Only straight exit remains available. (FS-112)
77-3, 77-6, 77-12, 77-28	Staple drive abnormality	FNS	The selection of the staple, sort or saddle mode (stitch-and-fold) is not available. (FS-114)
77-13, 77-14, 77-22, 77-23, 77-26	Saddle drive abnormality	SK	The selection of the saddle mode (stitch-and-fold) is not available. (SK-114)
82-2	Document manager initialization abnormality	HDD	Copying, printing (except a personal letter) remain enabled.
82-3	I-FAX report initialization abnormality	HDD	Copying, printing (except a personal letter) remain enabled.
85-1	Network device abnormality	Network	Copying and faxing remain enabled.
85-2	IEEE1284 device abnormality	IEEE1284	Copying and faxing remain enabled.
85-3	USB device abnormality	USB	Copying and faxing remain enabled.

△3

Error code	Error	Unit to be cut off	Remarks
86-2, 86-3	FAX board error	FAX	Copying and printing remain enabled.
86-6	FAX file initialization abnormality	HDD	Copying, printing (except a personal letter) remain enabled.
86-7, 86-8	FL-102/FL-103 board error	FL-102/FL-103	Copy, FAX (1 line) and printer can be used.
87-2, 87-3	Printer board abnormalities	Printer	Copying and faxing remain enabled.

4.3 L Detection Error Code List

Code	Cause	Clearance method	Suspected defective part
0003	The TDS (Toner density sensor) output ripple at the end of L detection was 0.5V or less.	SW2 (Sub power switch) OFF/ON	• Developing unit connector • TDS • CB (Main body control board)
0004	The TDS output ripple while the developer is being agitated during L detection adjustment was 0.02V or less (there is almost no change in output).	SW2 OFF/ON	• M1 (Main motor) • Developing agitator screw • Developing unit connector • TDS • CB
0005	TDS control voltage cannot be adjusted to within the range 5.76~7.46V.	SW2 OFF/ON2	• Developer • TDS • CB
0006	TCSB (Toner control sensor board) output signal D/A conversion error	SW2 OFF/ON	• CB • TSCB

4.4 Network Section Status Indication

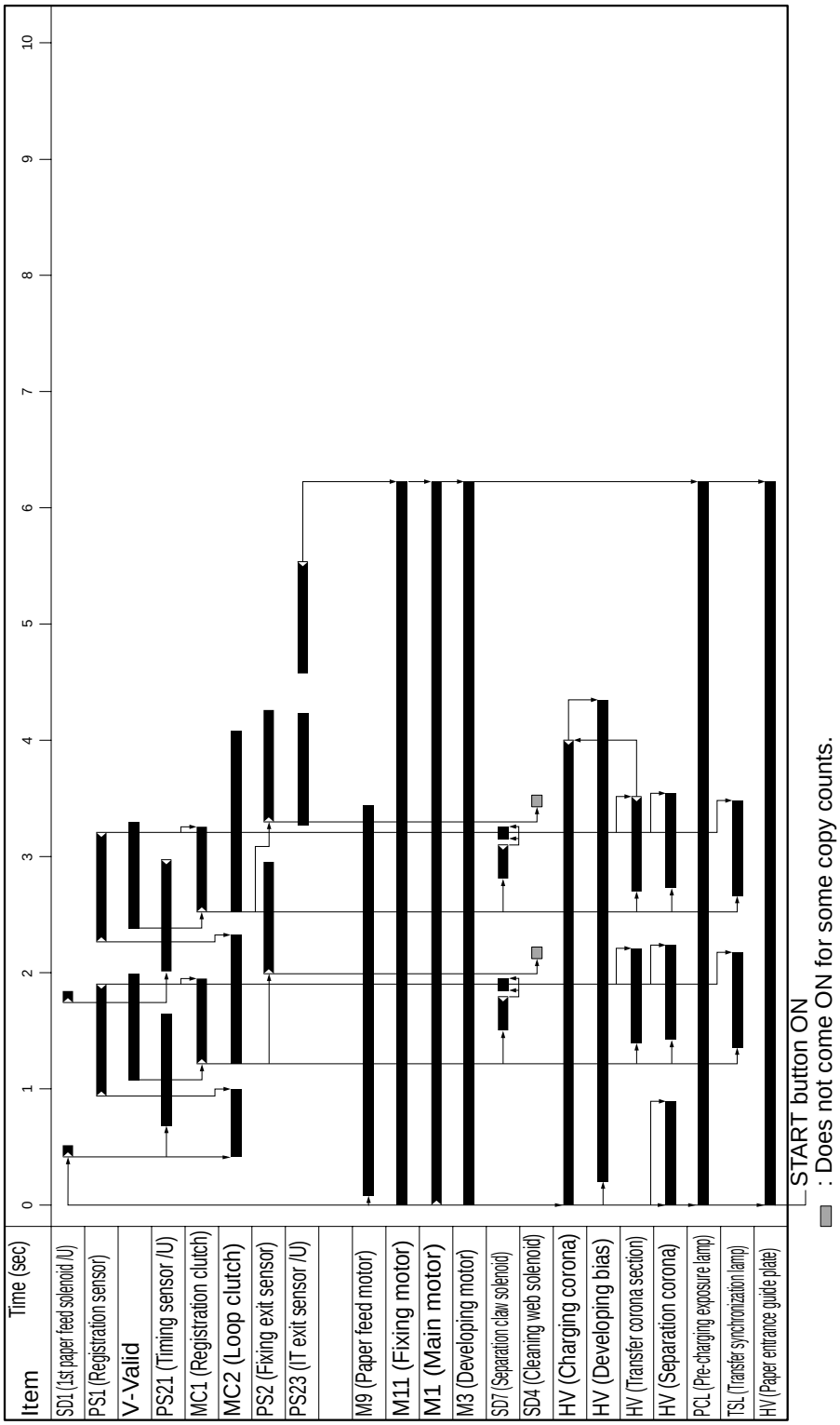
For the SCB (System control board), there are two orange and green status indicator LED's. The table below shows the status indicated by these two LED's.

ON/OFF of LED	Status of network section
Green LED flashin	Data being sent and received
Orange LED on	Network speed at 100 Mb/s
Orange LED off	Network speed at 10 Mb/s

5. TIMING CHART

5.1 7145 Timing Chart

A. 8.5x11, life size, 2 copies, feed from tray 1

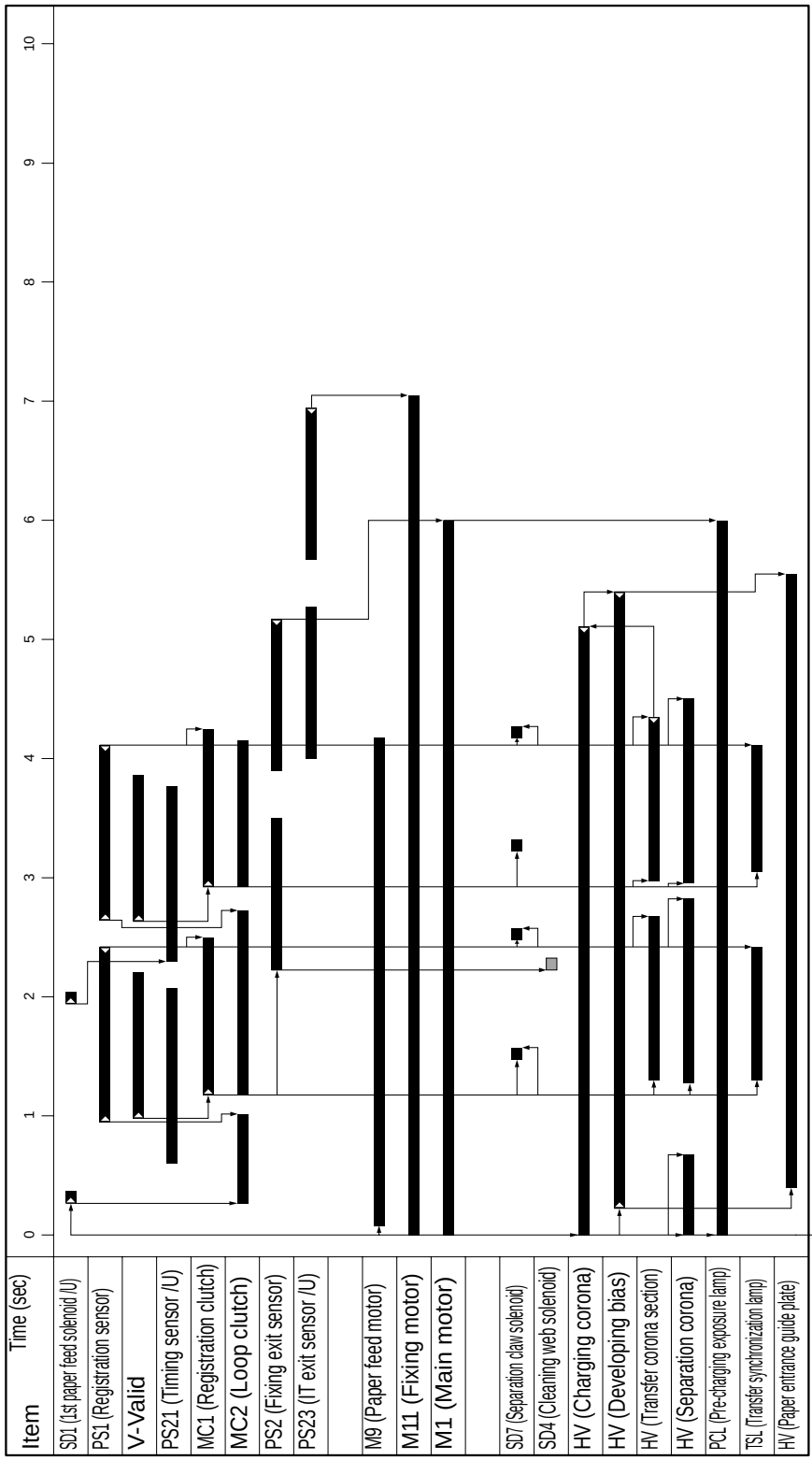


③ 5.2 7235/7228/7222 Timing Chart

A. 8.5x11, life size, 2 copies, feed from tray 1

Note:

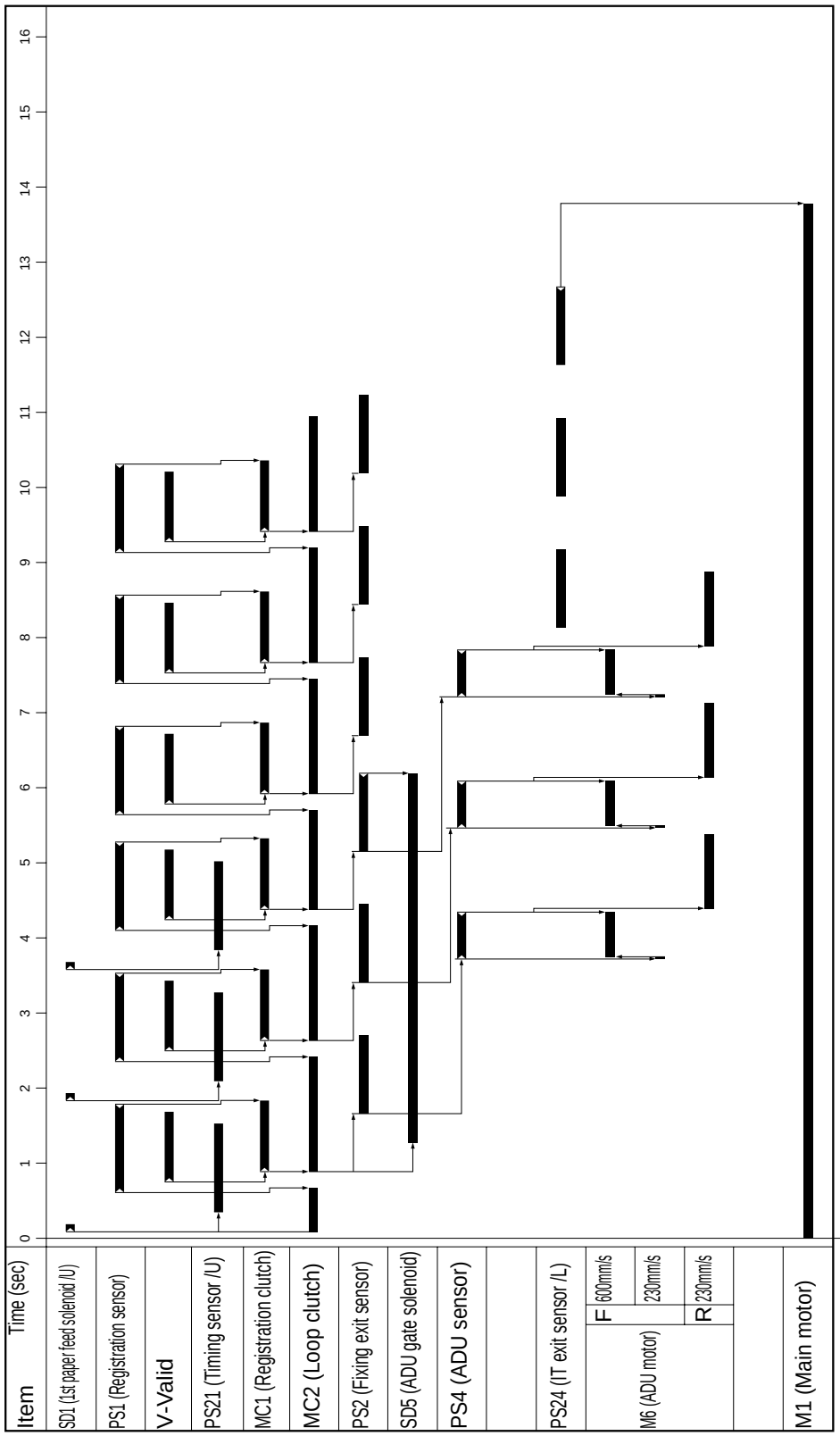
- This timing chart shows the case of 7235.



7322fs4009

5.3 7145 ADU Timing Chart

A. 8.5x11, life size, 3 copies, feed from tray 1

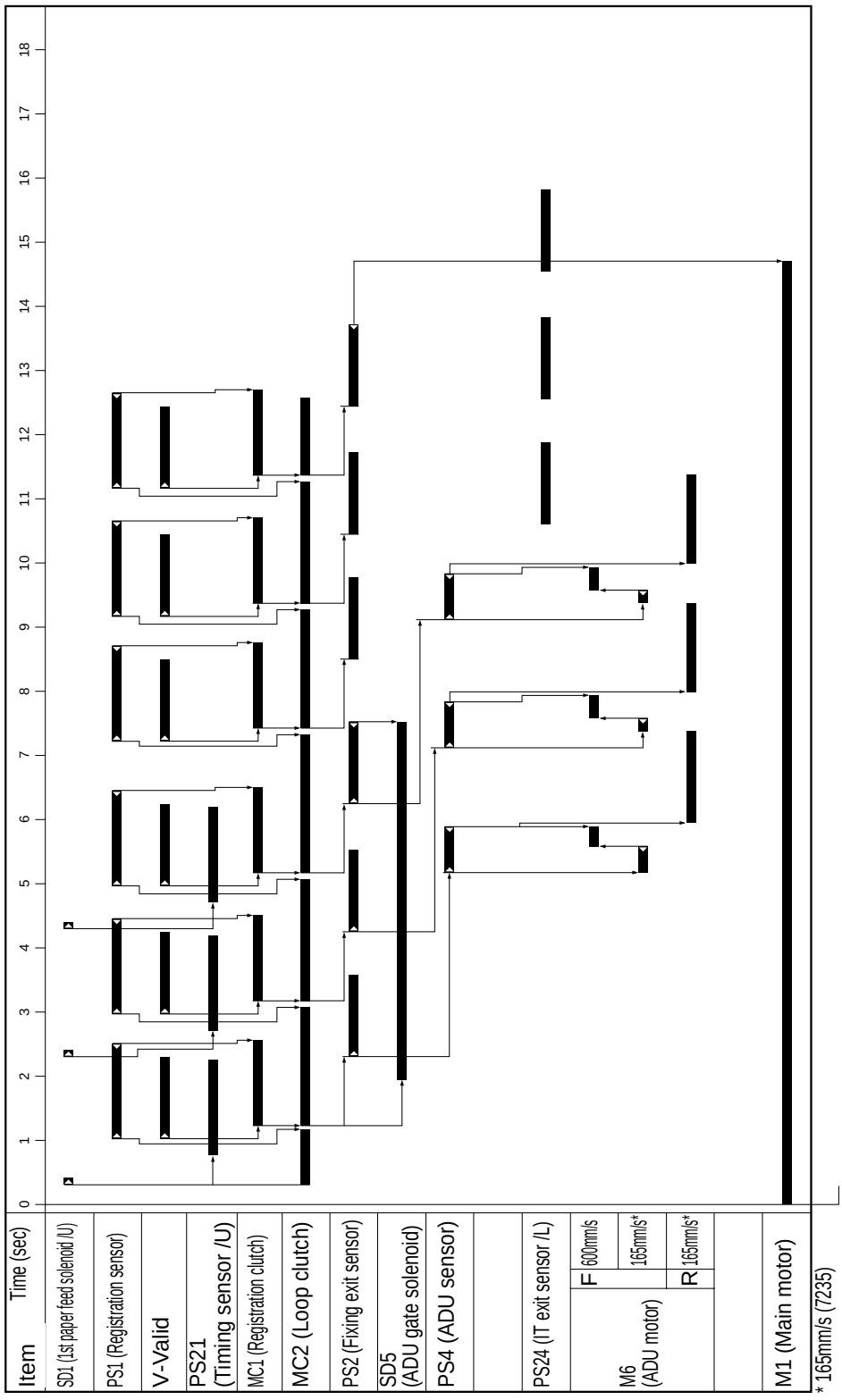


③ 5.4 7235/7228/7222 ADU Timing Chart

A. 8.5x11, life size, 3 copies, feed from tray 1

Note:

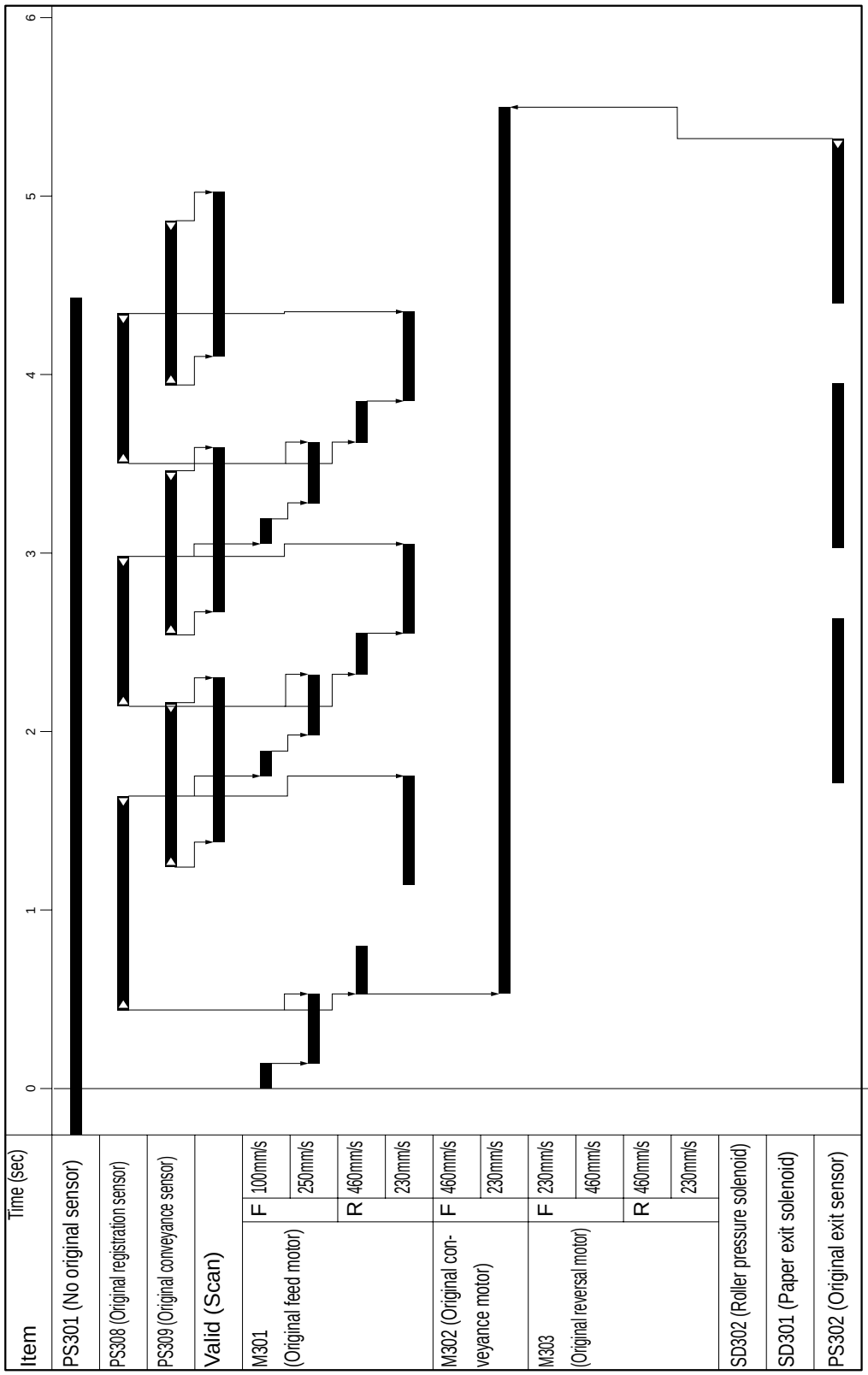
- This timing chart shows the case of 7235.



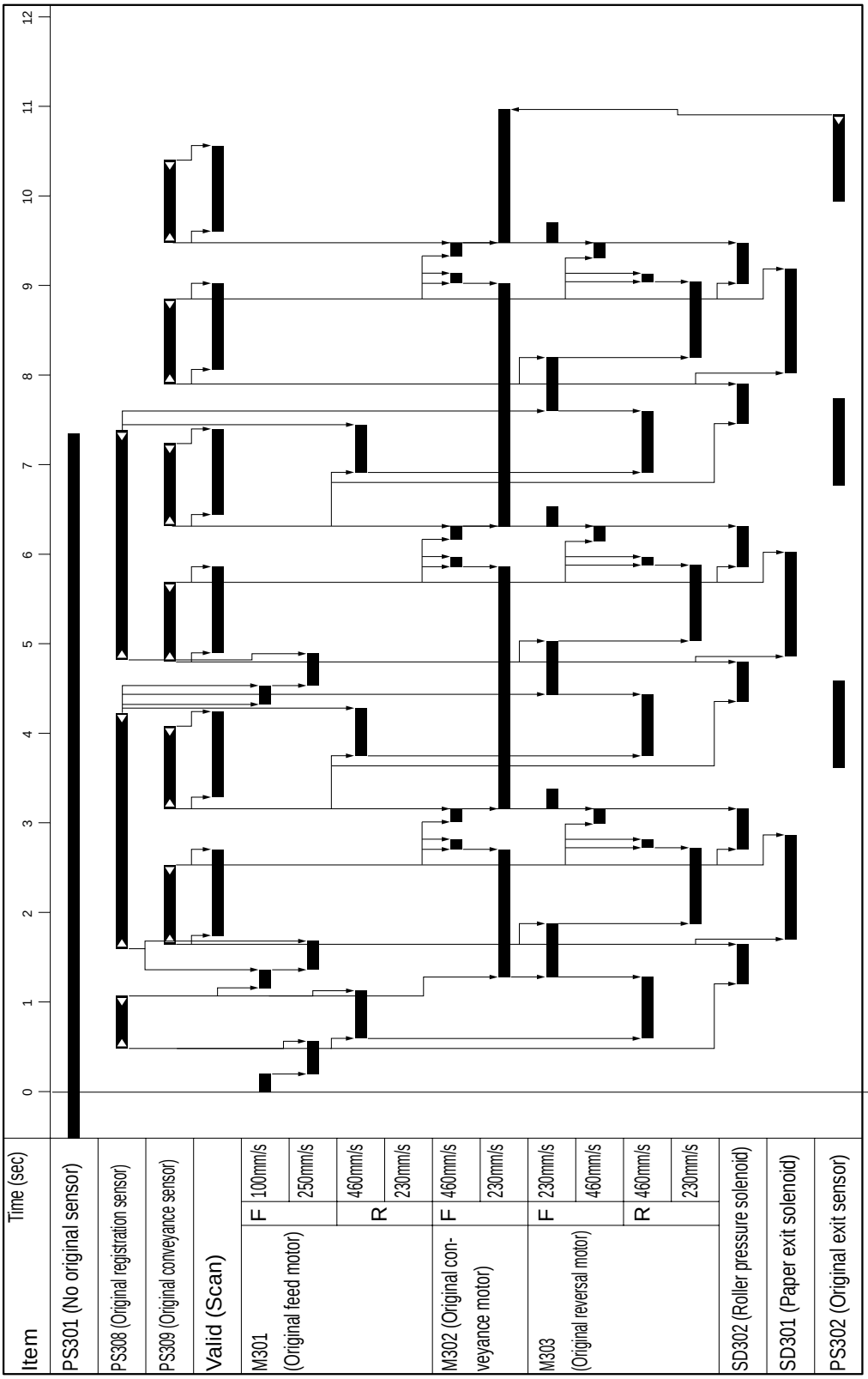
7322fs4010

③ 5.5 DF-318/DF-320 Timing Chart

A. 8.5x11, life size, single side original, 3 sheets



B. 8.5x11, life size, double side originals, 3 sheets

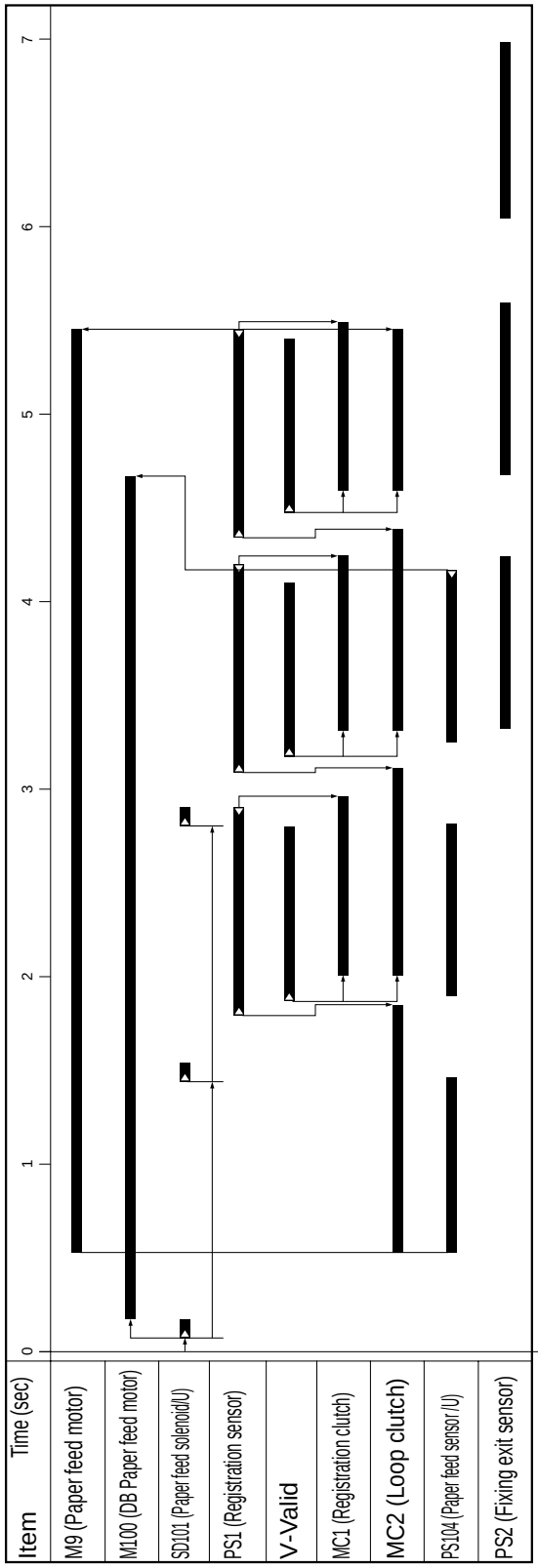


5.6 DB-211/DB-411 Timing Chart

A. 8.5x11, single side, 3 copies, feed from tray 3

△3 **Note:**

- This timing chart shows the case of 7145.



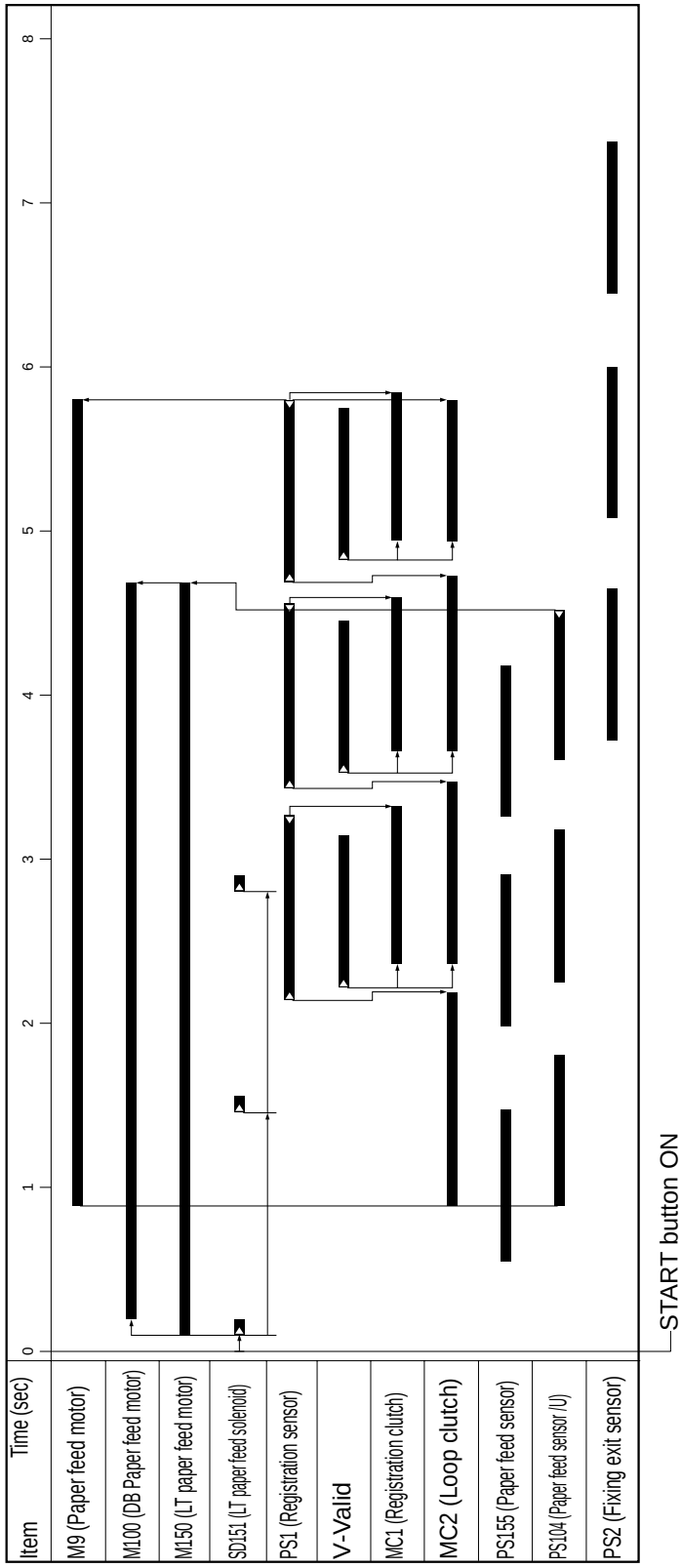
△3

5.7 LT-203 Timing Chart

A. 8.5x1, single side, 3 copies

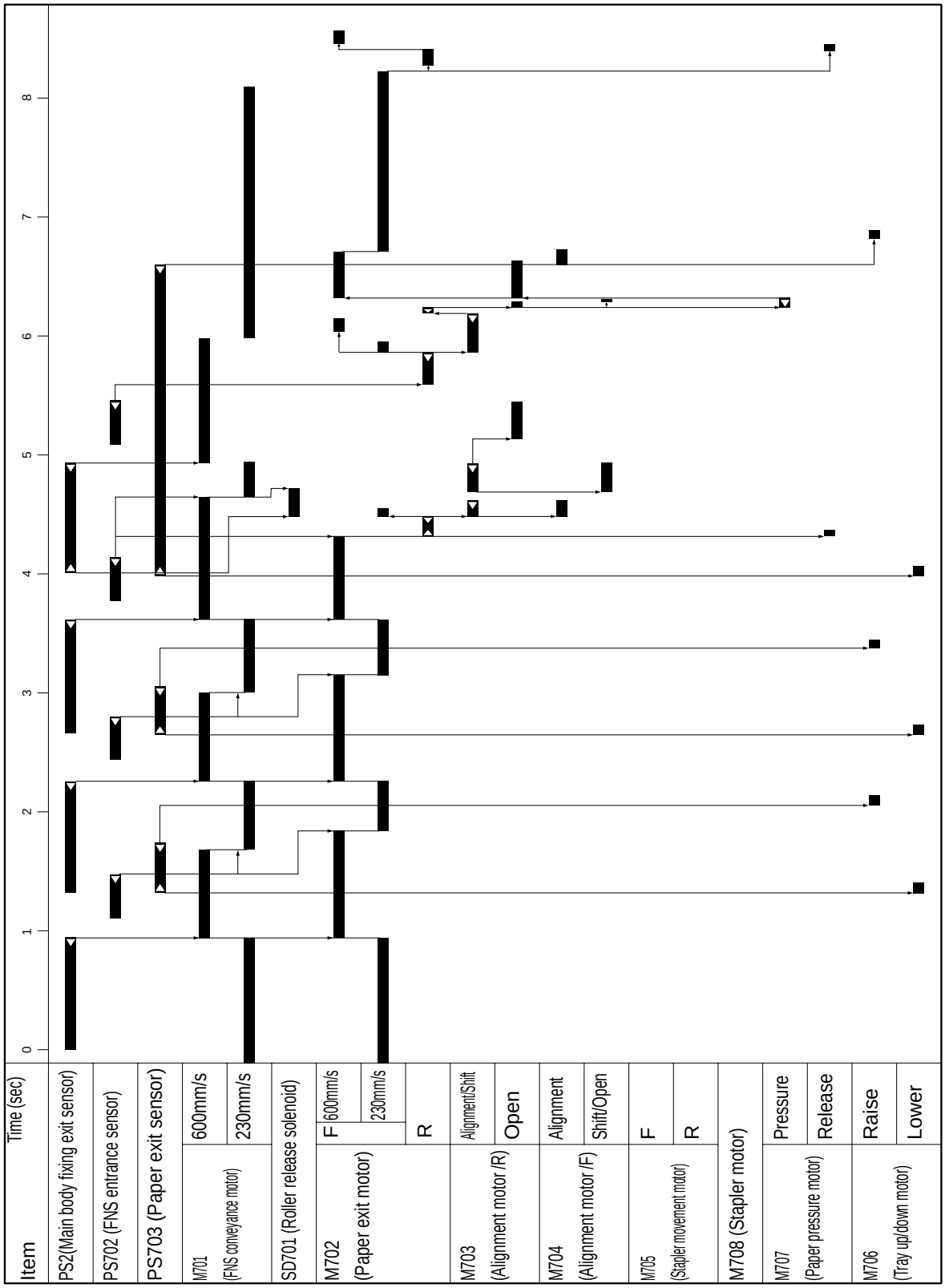
△3 **Note:**

- This timing chart shows the case of 7145.

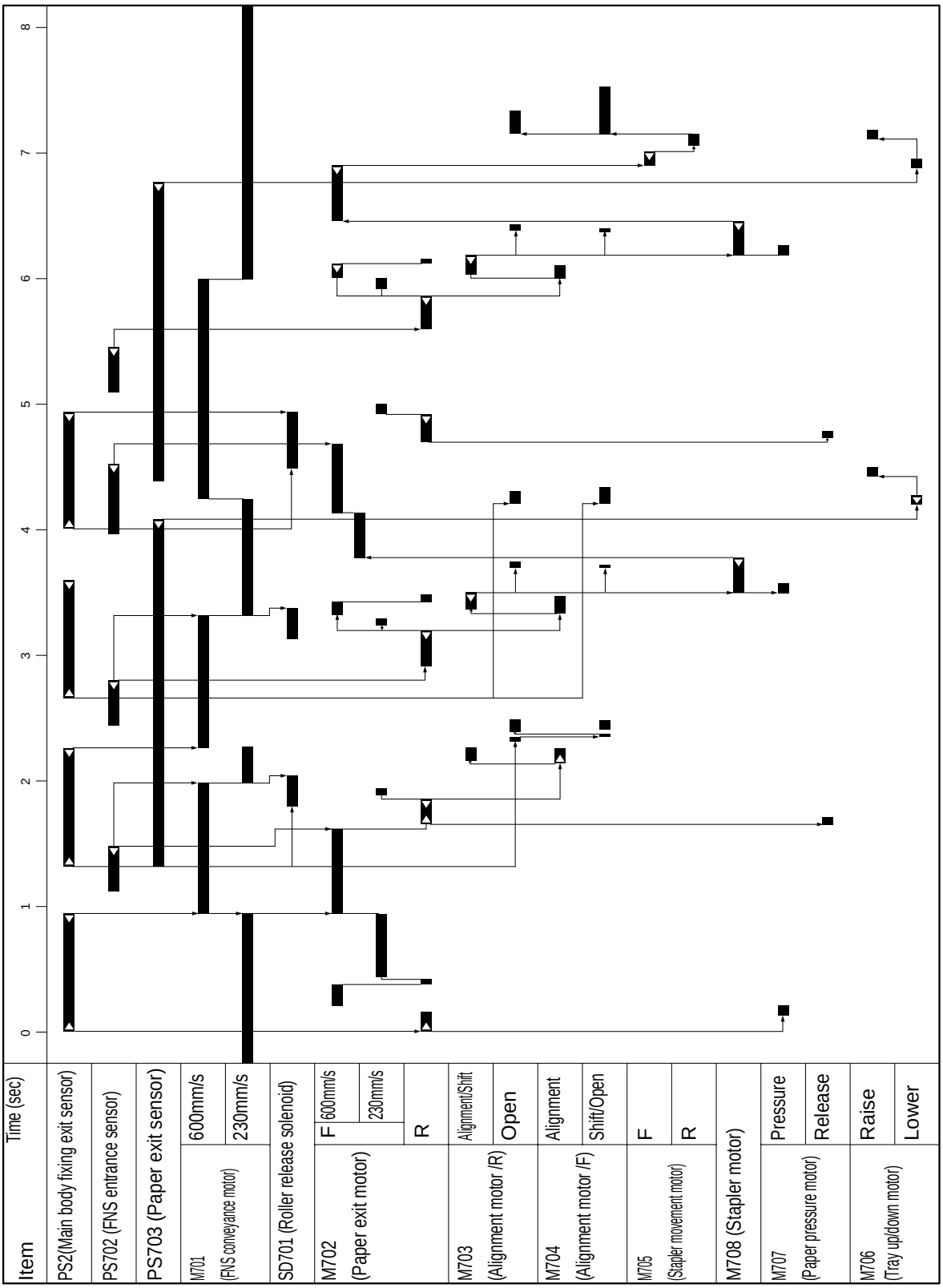


5.8 FS-112 Timing Chart

A. 8.5x11, sort mode, 2 originals, 2 sets setting

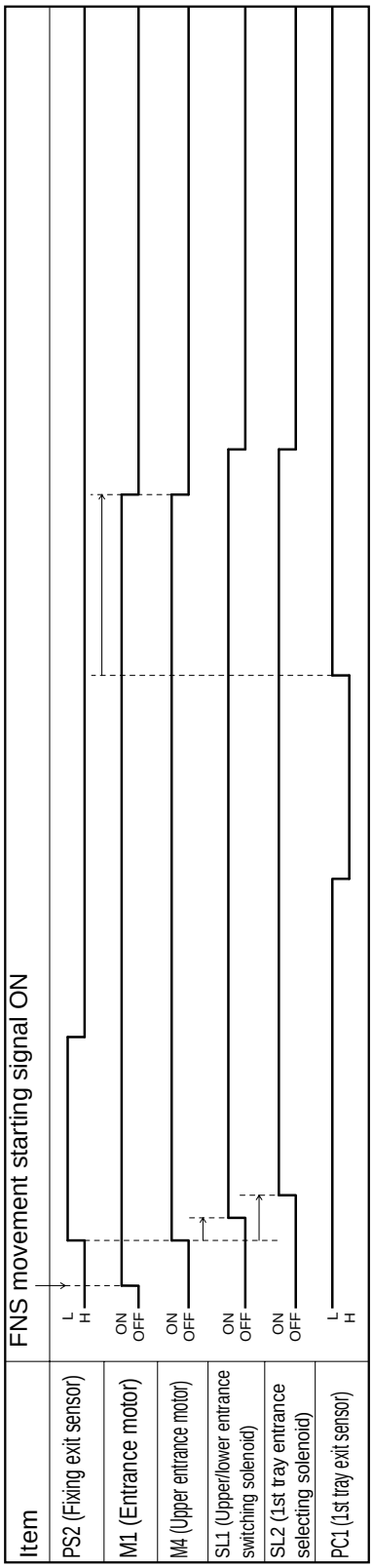


B. 8.5x11, staple mode, 2 originals, 1 position, 2 sets setting

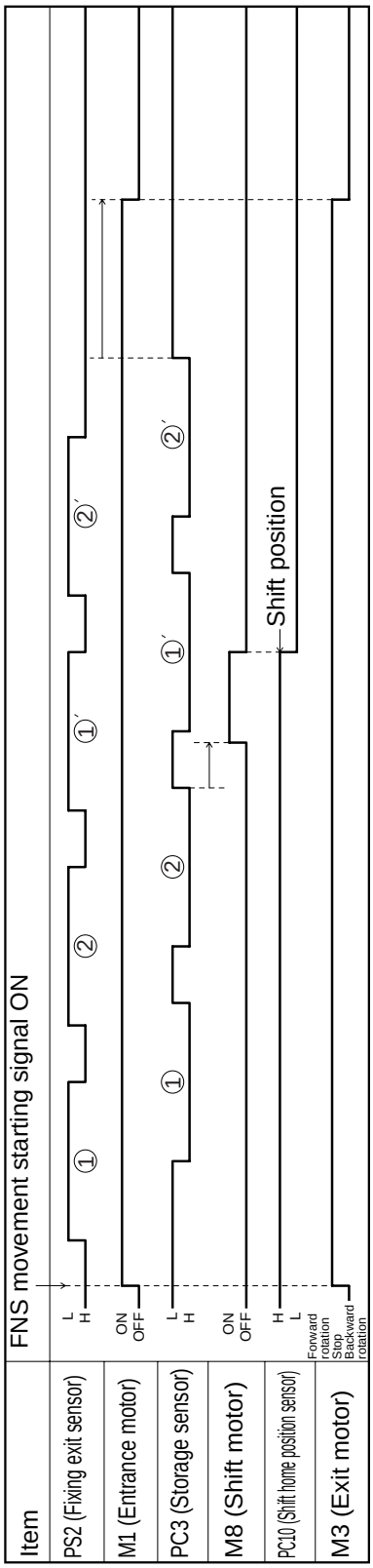


5.9 FS-113 Timing Chart

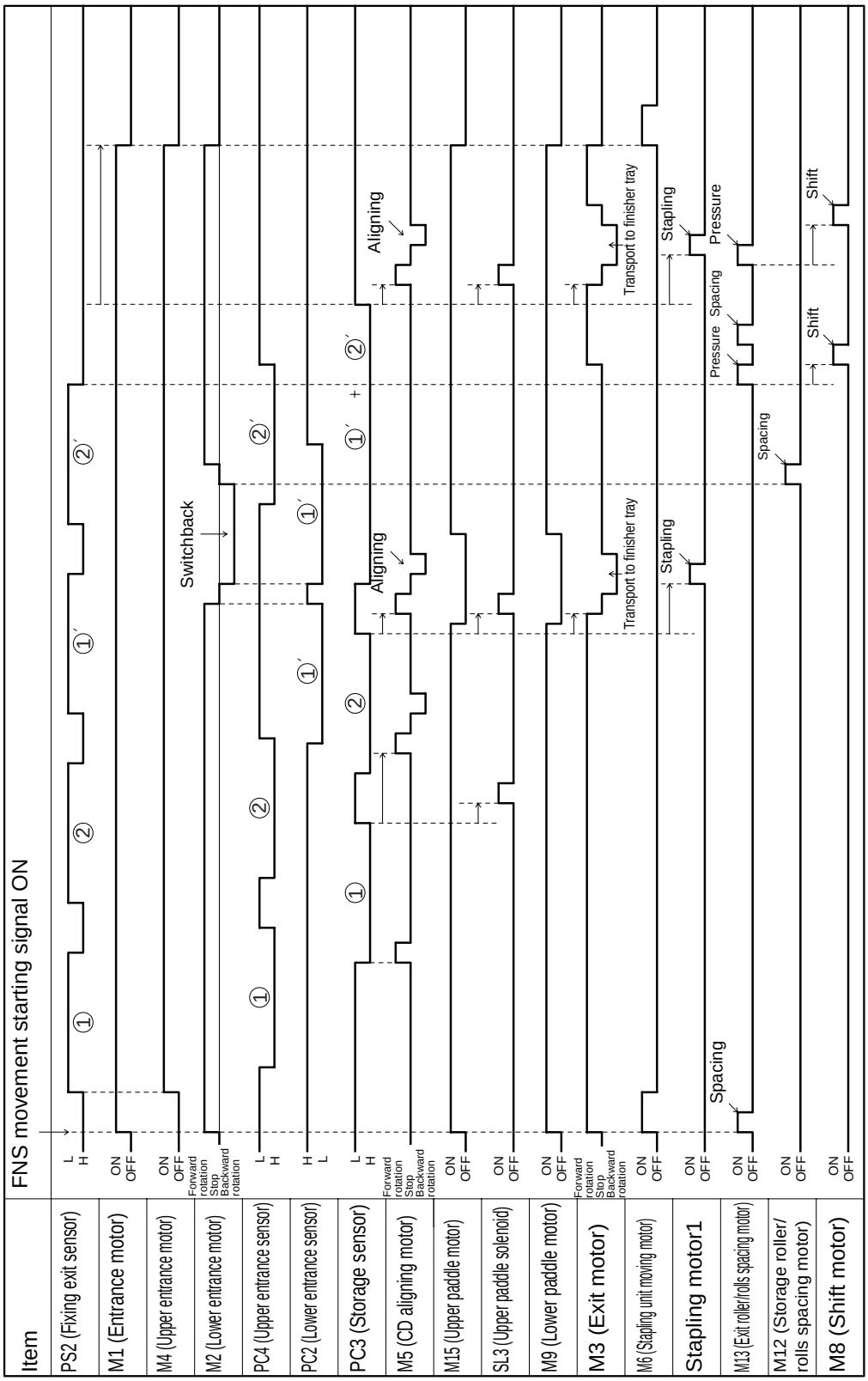
A. Non-sort, 1 original, 1 copy setting



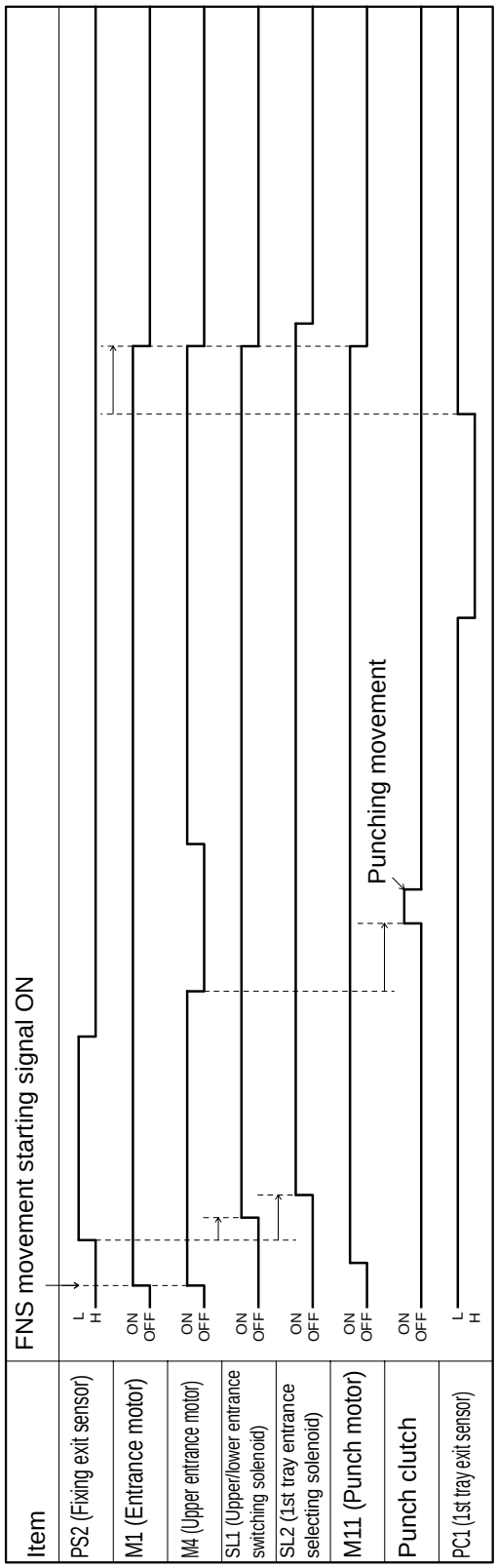
B. Sort, 2 originals, 2 sets setting



C. Rear corner stapling, 8.5x11R, 2 originals, 2 sets setting

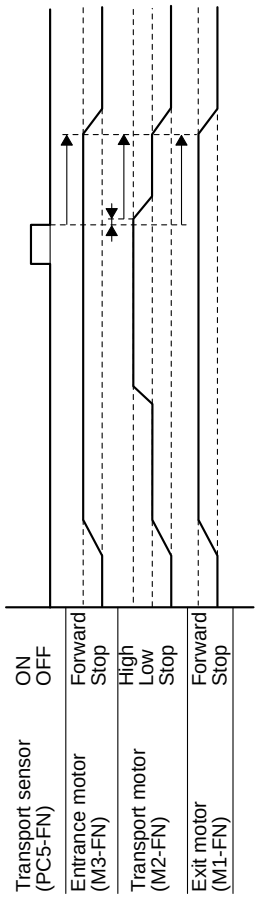


D. Non-sort, hole punch, 1 original, 1 copy setting



5.10 FS-114 Timing Chart

A. Non-sort, 8.5x11, 1 copy setting



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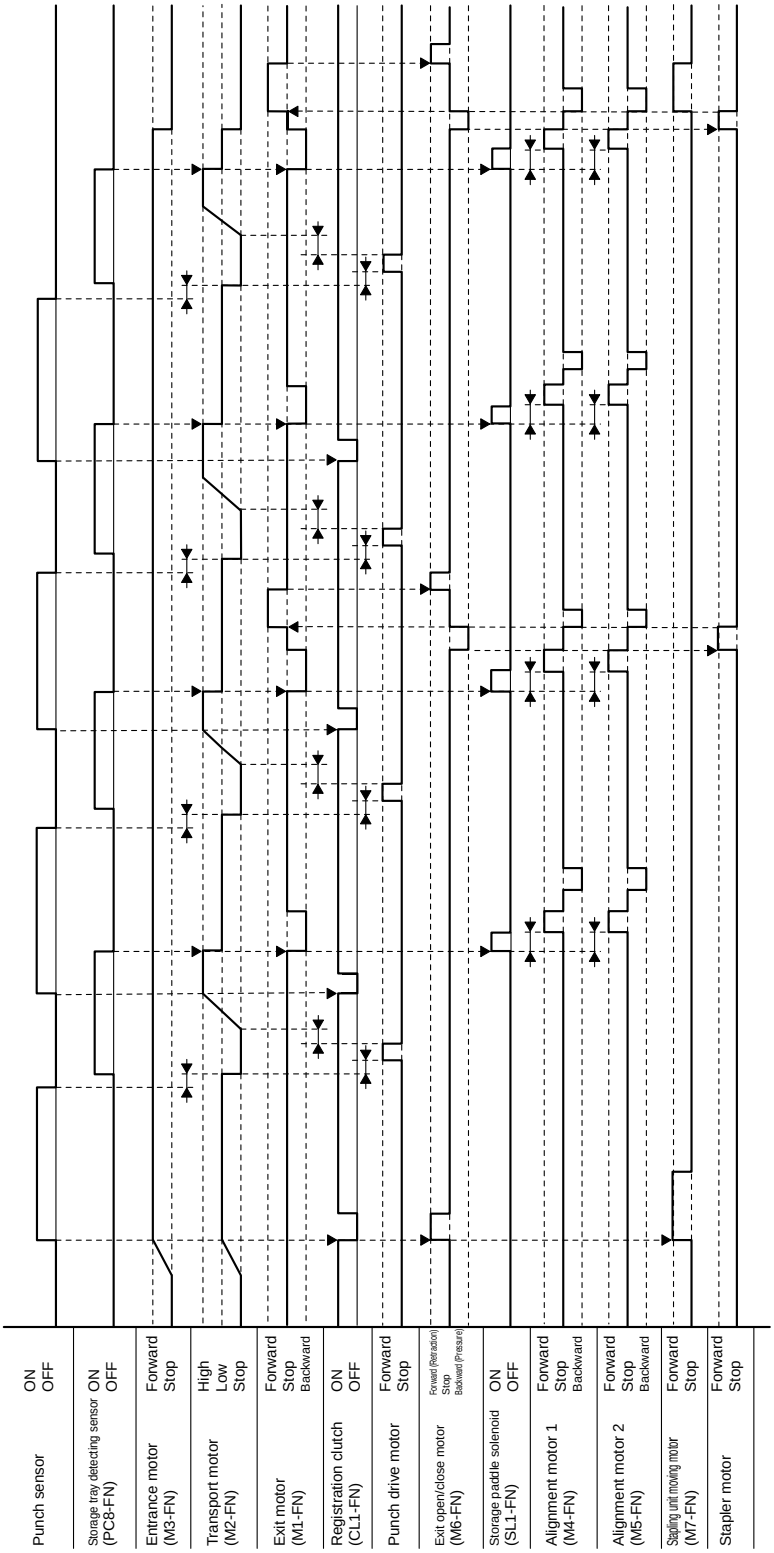
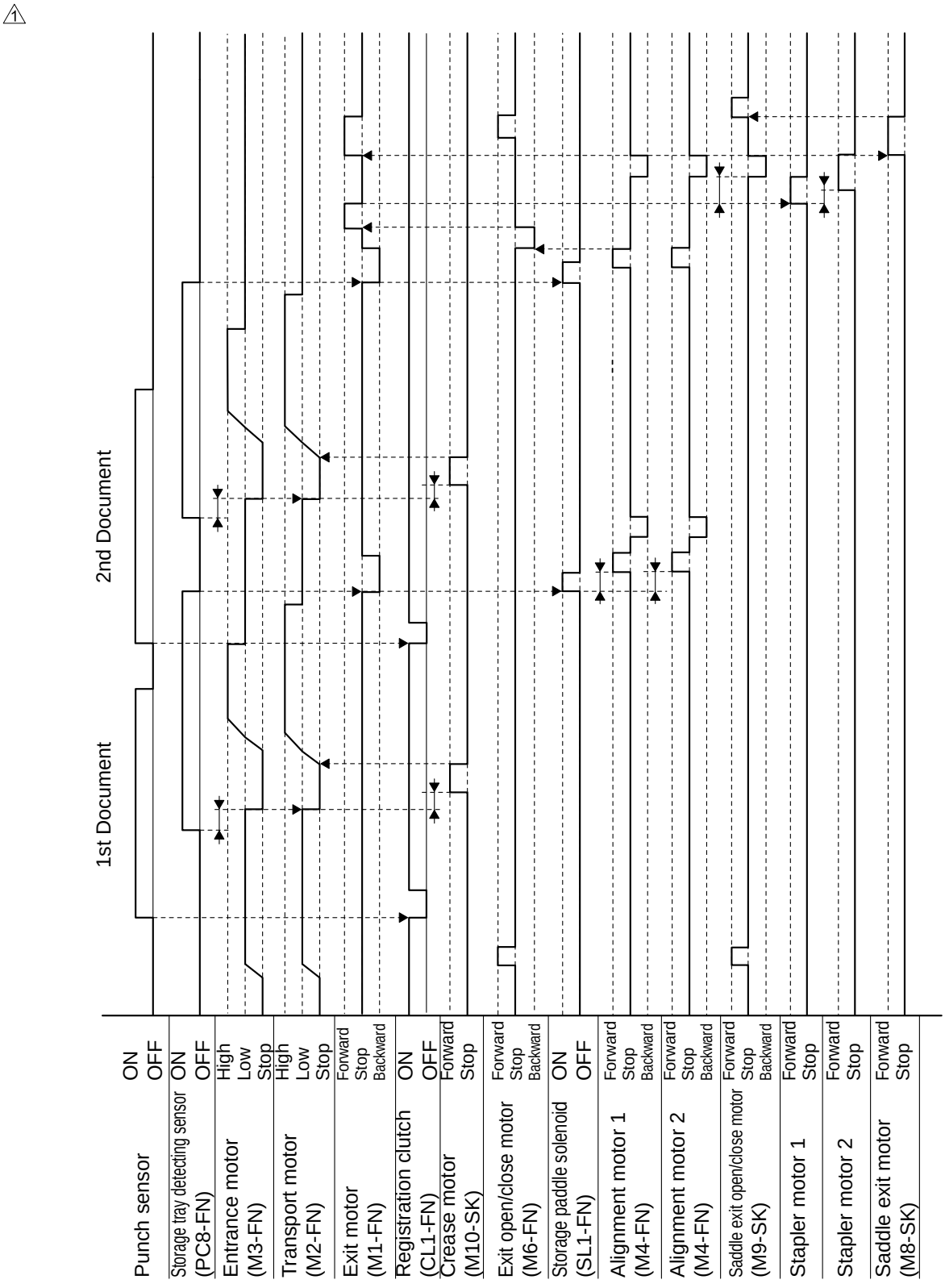
B. 1 staple, 2 holes, 8.5x11, 2 originals, 2 sets setting



4349T505BA

5.11 SK-114 Timing Chart

A. Booklet-binding, 2-point stapling, 8.5x11R, 2 originals, 1 set setting



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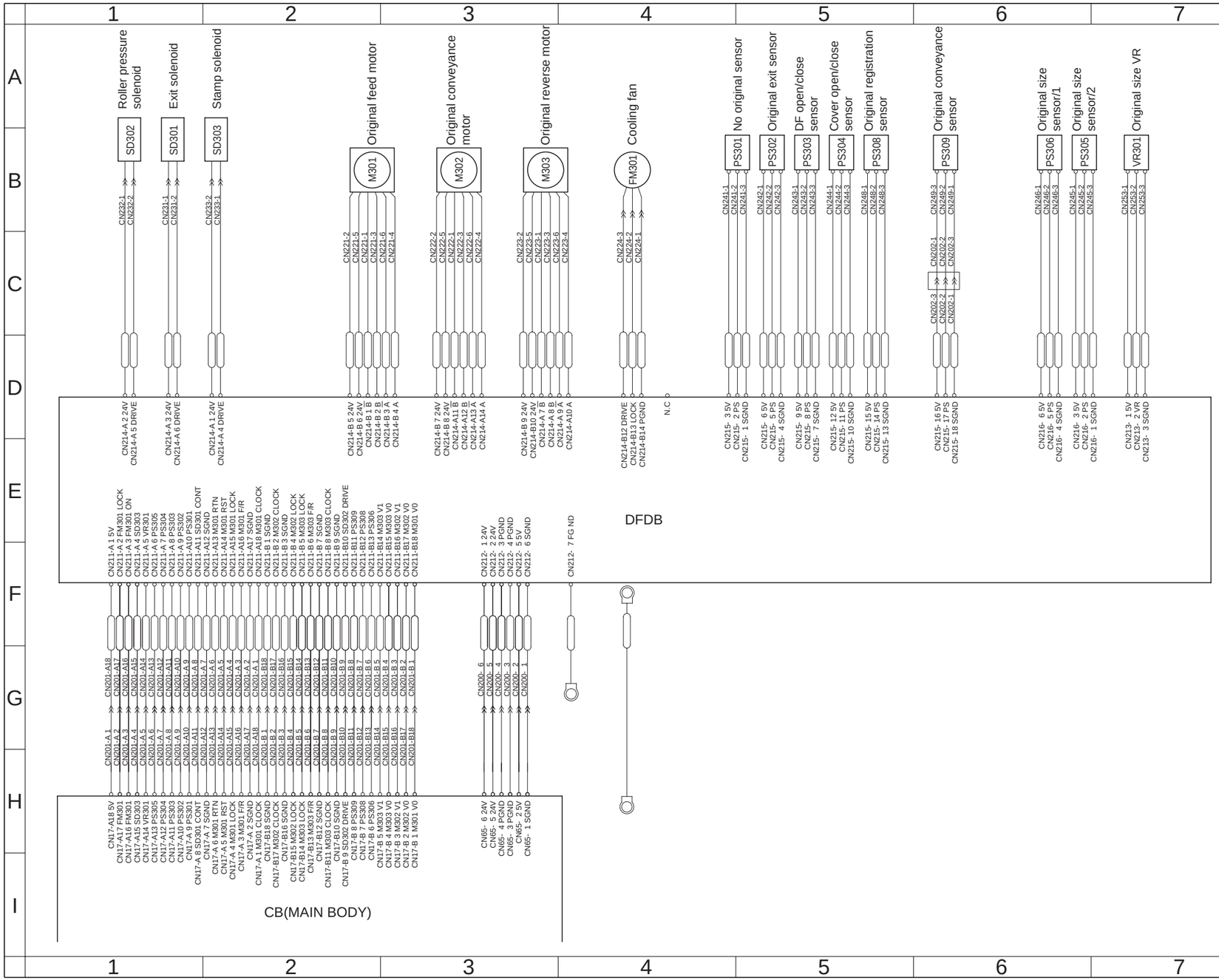
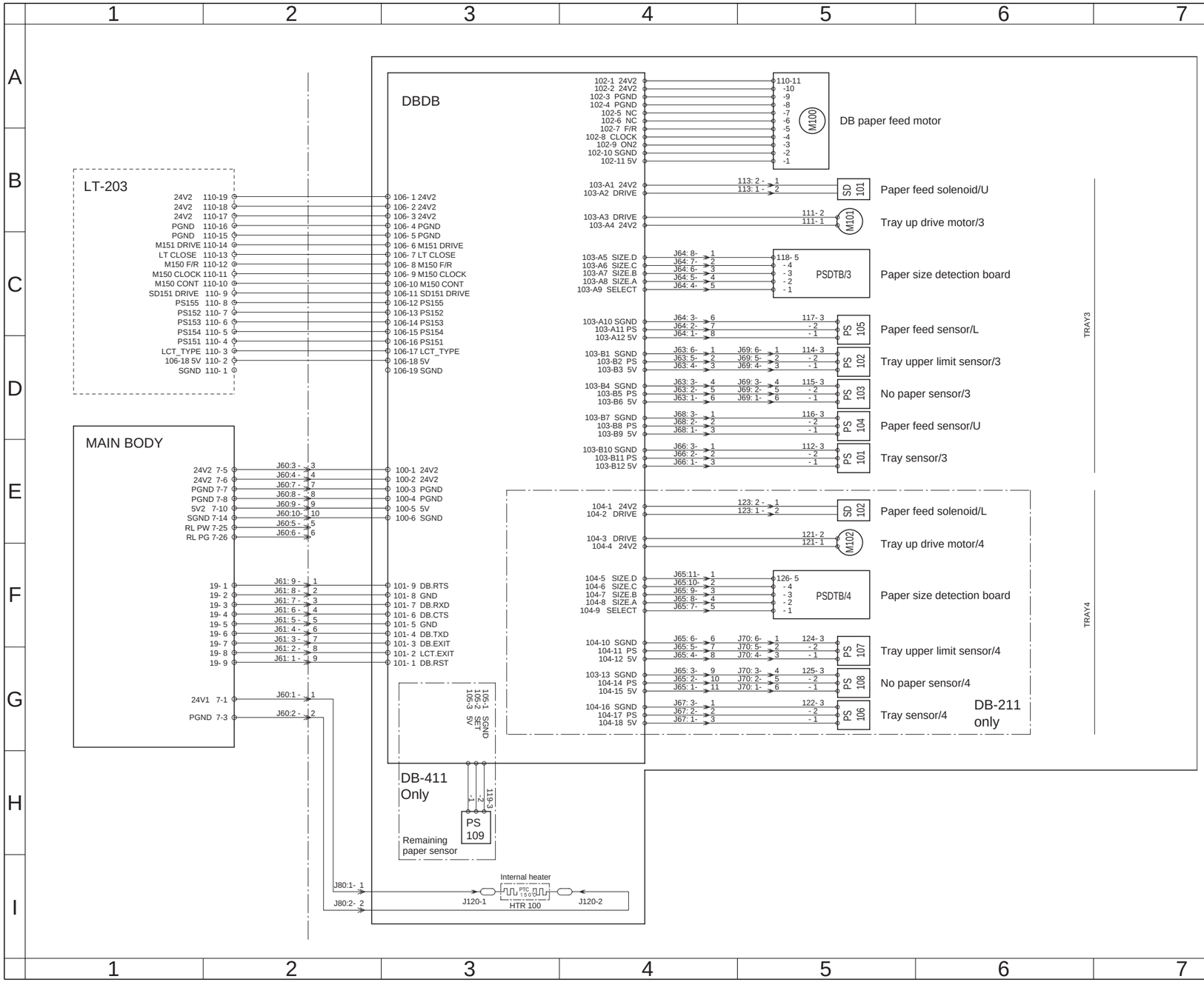
6. OVERALL WIRING DIAGRAM

⚠3 6.1 DF-318/320 Overall Wiring Diagram



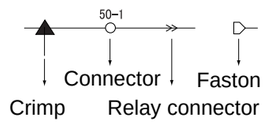
Symbol	Part name	Location
DFDB	DF drive board	1-D
M301	Original feed motor	2-B
M302	Original conveyance motor	3-B
M303	Original reverse motor	3-B
FM301	Cooling fan	4-B
SD301	Exit solenoid	1-A
SD302	Roller pressure solenoid	1-A
SD303	Stamp solenoid	2-A
PS301	No original sensor	4-B
PS302	Original exit sensor	5-B
PS303	DF open/close sensor	5-B
PS304	Cover open/close sensor	5-B
PS305	Original size sensor/1	6-B
PS306	Original size sensor/2	6-B
PS308	Original registration sensor	5-B
PS309	Original conveyance sensor	6-B
VR301	Original size VR	7-B

6.2 DB-211/411 Overall Wiring Diagram

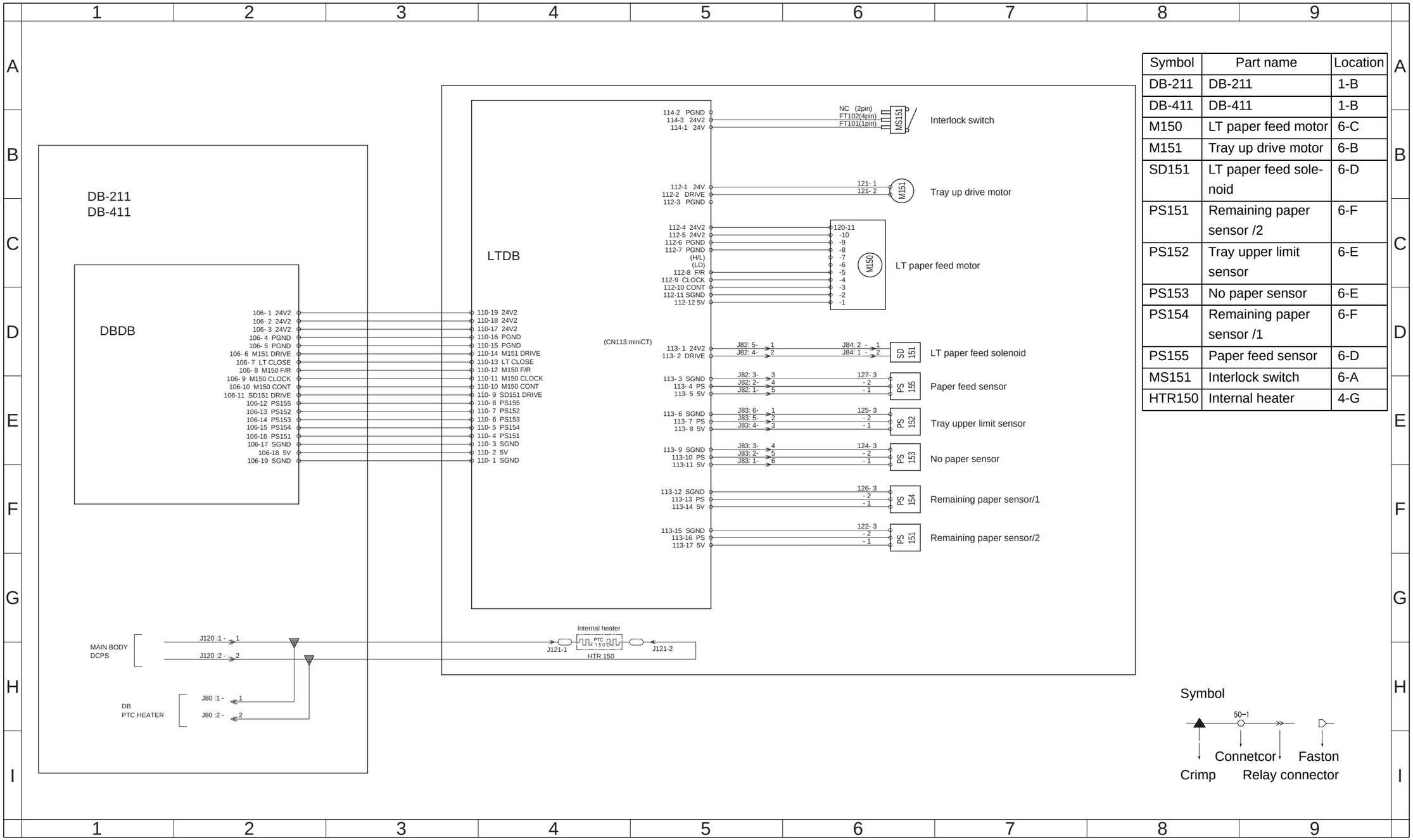


Symbol	Part name	Location
LT-203	LT-203	1-B
PSDTB/3	Paper size detection board /3	5-C
PSDTB/4	Paper size detection board /4	5-F
M100	DB paper feed motor	5-A
M101	Tray up drive motor /3	5-B
M102	Tray up drive motor /4	5-E
SD101	Paper feed solenoid /U	5-B
SD102	Paper feed solenoid /L	5-E
PS101	Tray sensor /3	5-E
PS102	Tray upper limit sensor /3	5-D
PS103	No paper sensor /3	5-D
PS104	Paper feed sensor /U	5-D
PS105	Paper feed sensor /L	5-C
PS106	Tray sensor /4	5-G
PS107	Tray upper limit sensor /4	5-F
PS108	No paper sensor /4	5-G
PS109	Remaining paper sensor	3-H
HTR100	Internal heater	3-I

Symbol



6.3 LT-203 Overall Wiring Diagram



Symbol	Part name	Location
DB-211	DB-211	1-B
DB-411	DB-411	1-B
M150	LT paper feed motor	6-C
M151	Tray up drive motor	6-B
SD151	LT paper feed sole-noid	6-D
PS151	Remaining paper sensor /2	6-F
PS152	Tray upper limit sensor	6-E
PS153	No paper sensor	6-E
PS154	Remaining paper sensor /1	6-F
PS155	Paper feed sensor	6-D
MS151	Interlock switch	6-A
HTR150	Internal heater	4-G

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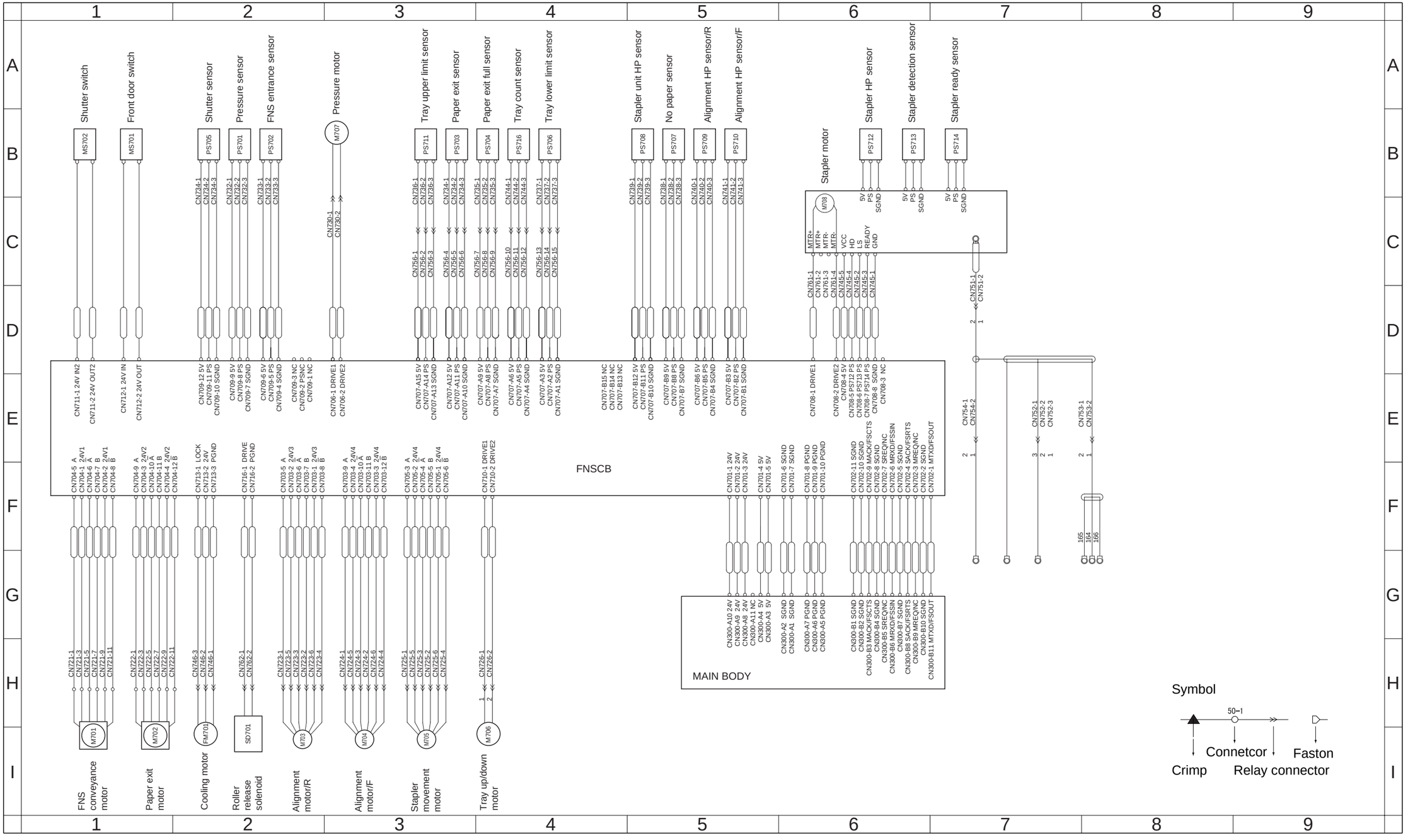
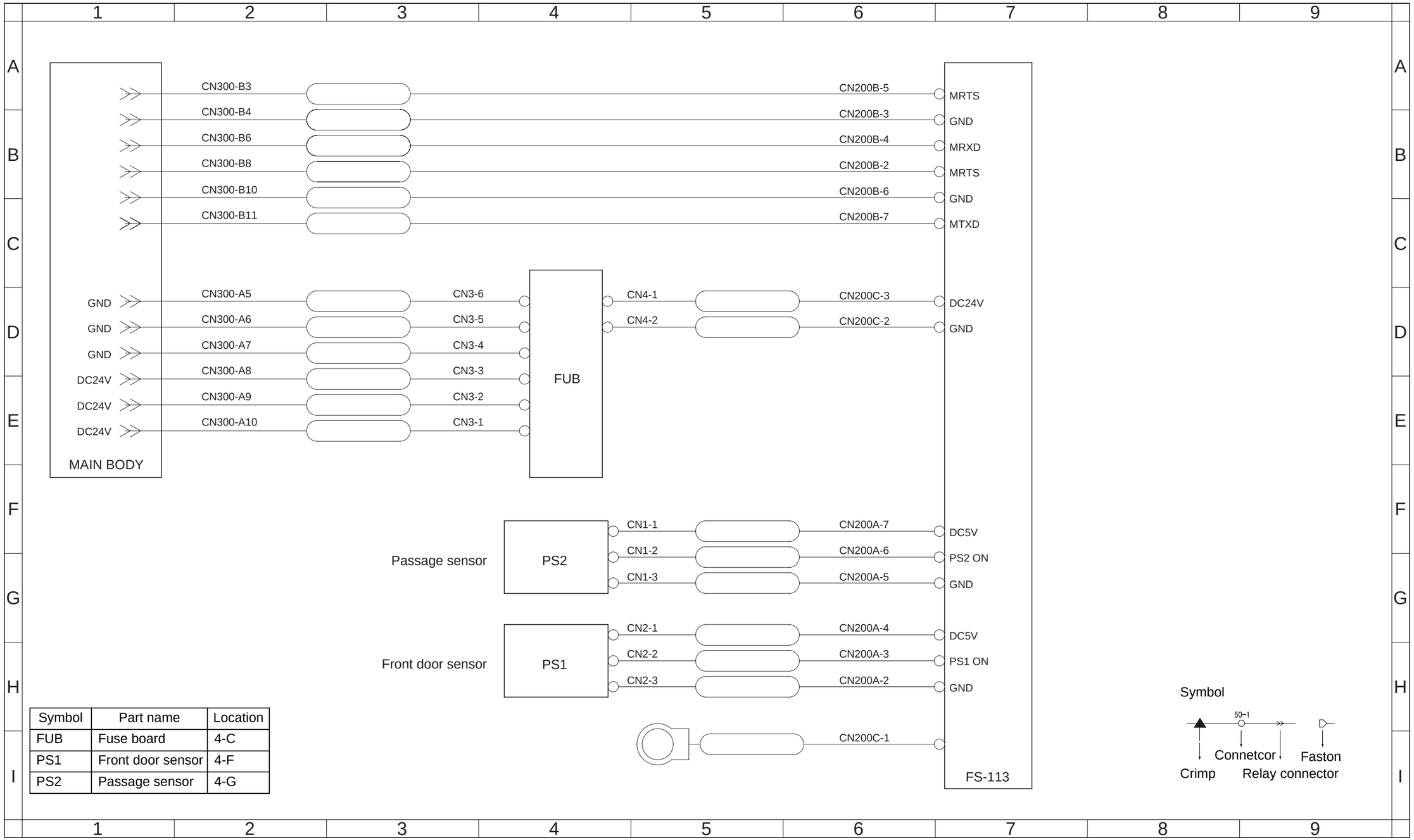
6.4 FS-112 Overall Wiring Diagram



Symbol	Part name	Location
FNSCB	FNS control board	1-D
M701	FNS conveyance motor	1-H
M702	Paper exit motor	1-H
M703	Alignment motor /R	2-I
M704	Alignment motor /F	3-I
M705	Stapler movement motor	3-I
M706	Tray up/down motor	4-I
M707	Pressure motor	3-B
M708	Stapler motor	6-C
FM701	Cooling motor	2-I
SD701	Roller release solenoid	2-H
MS701	Front door switch	1-B
MS702	Shutter switch	1-B
PS701	Pressure sensor	2-B
PS702	FNS entrance sensor	2-B
PS703	Paper exit sensor	3-B
PS704	Paper exit full sensor	4-B
PS705	Shutter sensor	2-B
PS706	Tray lower limit sensor	4-B
PS707	No paper sensor	5-B
PS708	Stapler unit HP sensor	5-B
PS709	Alighnment HP sensor /R	5-B
PS710	Alighnment HP sensor /F	5-B
PS711	Tray upper limit sensor	3-B
PS712	Stapler HP sensor	6-B
PS713	Staple detection sensor	6-B
PS714	Stapler ready sensor	7-B
PS716	Tray count sensor	4-B

6.5 RU-101 Overall Wiring Diagram



Symbol	Part name	Location
FUB	Fuse board	4-C
PS1	Front door sensor	4-F
PS2	Passage sensor	4-G

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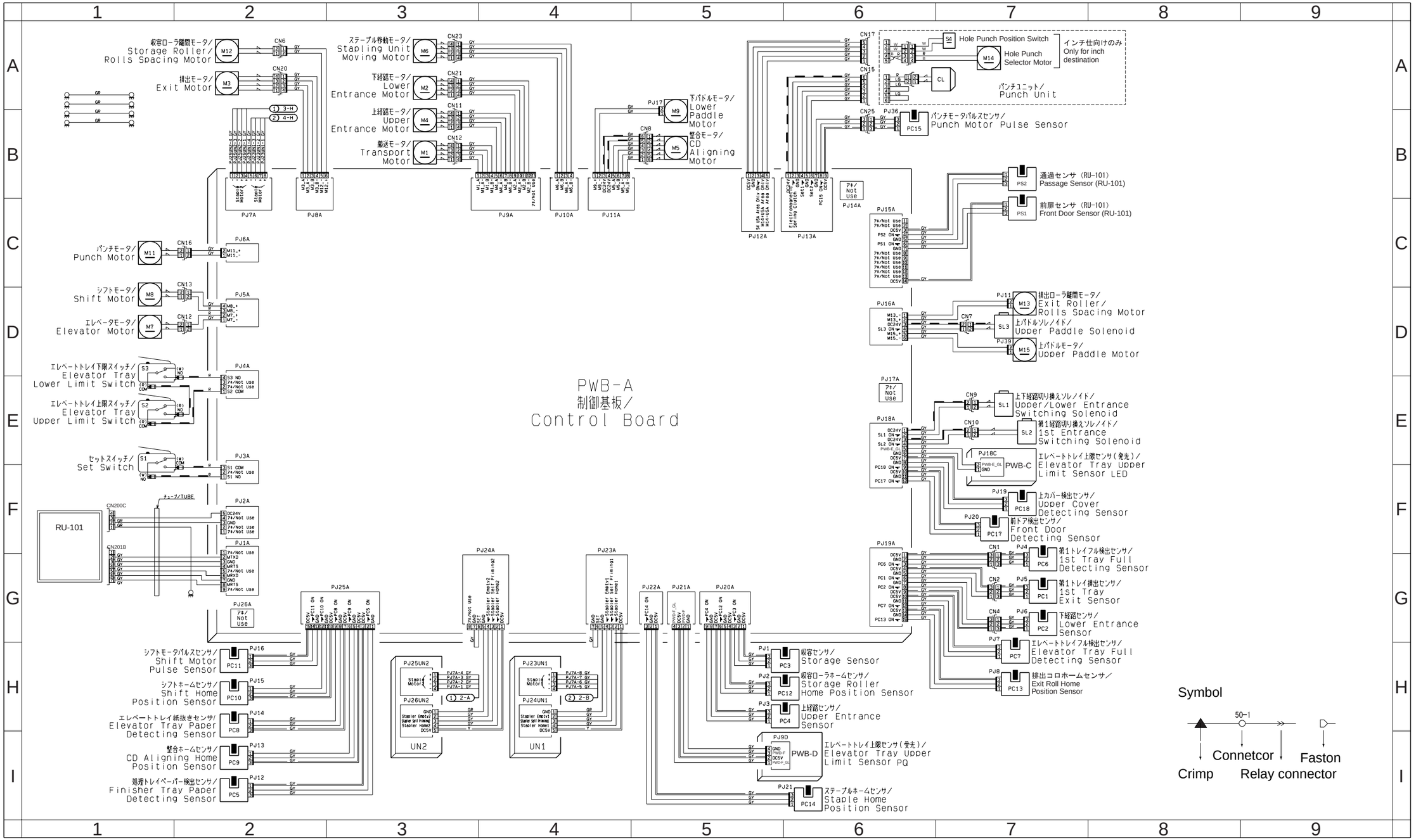
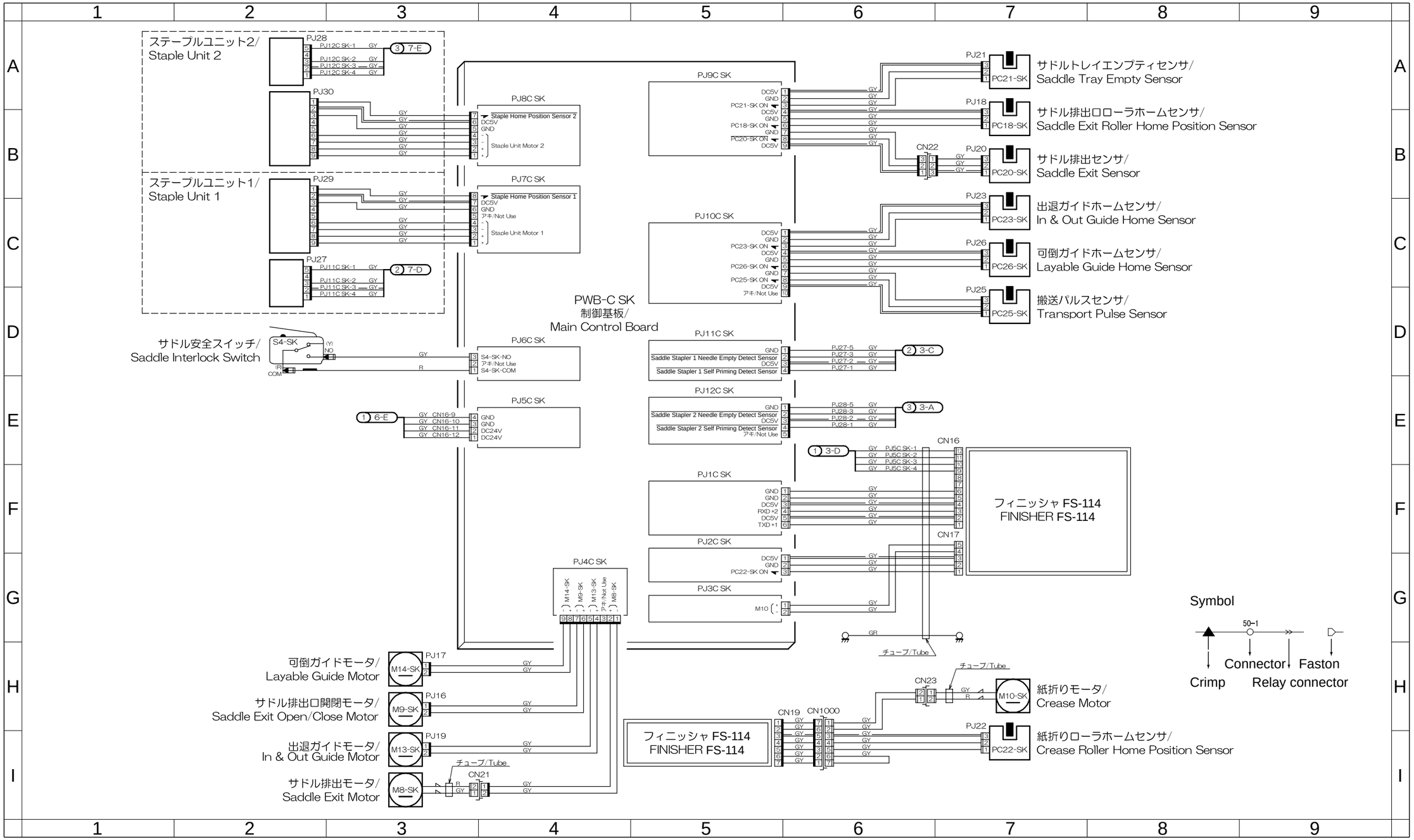
6.6 FS-113 Overall Wiring Diagram



Symbol	Part name	Location
RU-101	RU-101	1-F
M1	Transport motor	3-B
M2	Lower entrance motor	3-A
M3	Exit motor	2-A
M4	Upper entrance motor	3-B
M5	CD aligning motor	5-B
M6	Stapling unit moving sensor	3-A
M7	Elevator motor	1-D
M8	Shift motor	1-C
M9	Lower paddle motor	5-A
M11	Punch motor	1-C
M12	Storage roller/rolls spacing motor	2-A
M13	Exit roller/rolls spacing motor	7-D
M14	Hole punch selector motor	7-A
M15	Upper paddle motor	7-D
CL	Punch clutch	6-A
SL1	Upper/Lower entrance switching solenoid	7-E
SL2	1st entrance switching solenoid	7-E
SL3	Upper paddle solenoid	7-D
S1	Set switch	1-E
S2	Elevator tray upper limit switch	1-E
S3	Elevator tray lower limit switch	1-D
S4	Hole punch position switch	7-A
PC1	1st tray exit sensor	7-G
PC2	Lower entrance sensor	7-G
PC3	Storage sensor	5-H
PC4	Upper entrance sensor	5-H
PC5	Finisher tray paper detecting sensor	2-I
PC6	1st tray full detecting sensor	7-F
PC7	Elevator tray full detecting sensor	7-H
PC8	Elevator tray paper detecting sensor	2-H
PC9	CD aligning home position sensor	2-I
PC10	Shift home position sensor	2-H
PC11	Shift motor pulse sensor	2-H
PC12	Storage roller home position sensor	5-H
PC13	Exit roll home position sensor	7-H
PC14	Staple home position sensor	6-I
PC15	Punch motor pulse sensor	6-B
PC17	Front door detecting sensor	7-F
PC18	Upper cover detecting sensor	7-F
PS1	Front door sensor (RU-101)	7-B
PS2	Passage sensor (RU-101)	7-B
PWB-C	Elevator tray upper limit sensor LED	7-E
PWB-D	Elevator tray upper limit sensor PQ	5-I

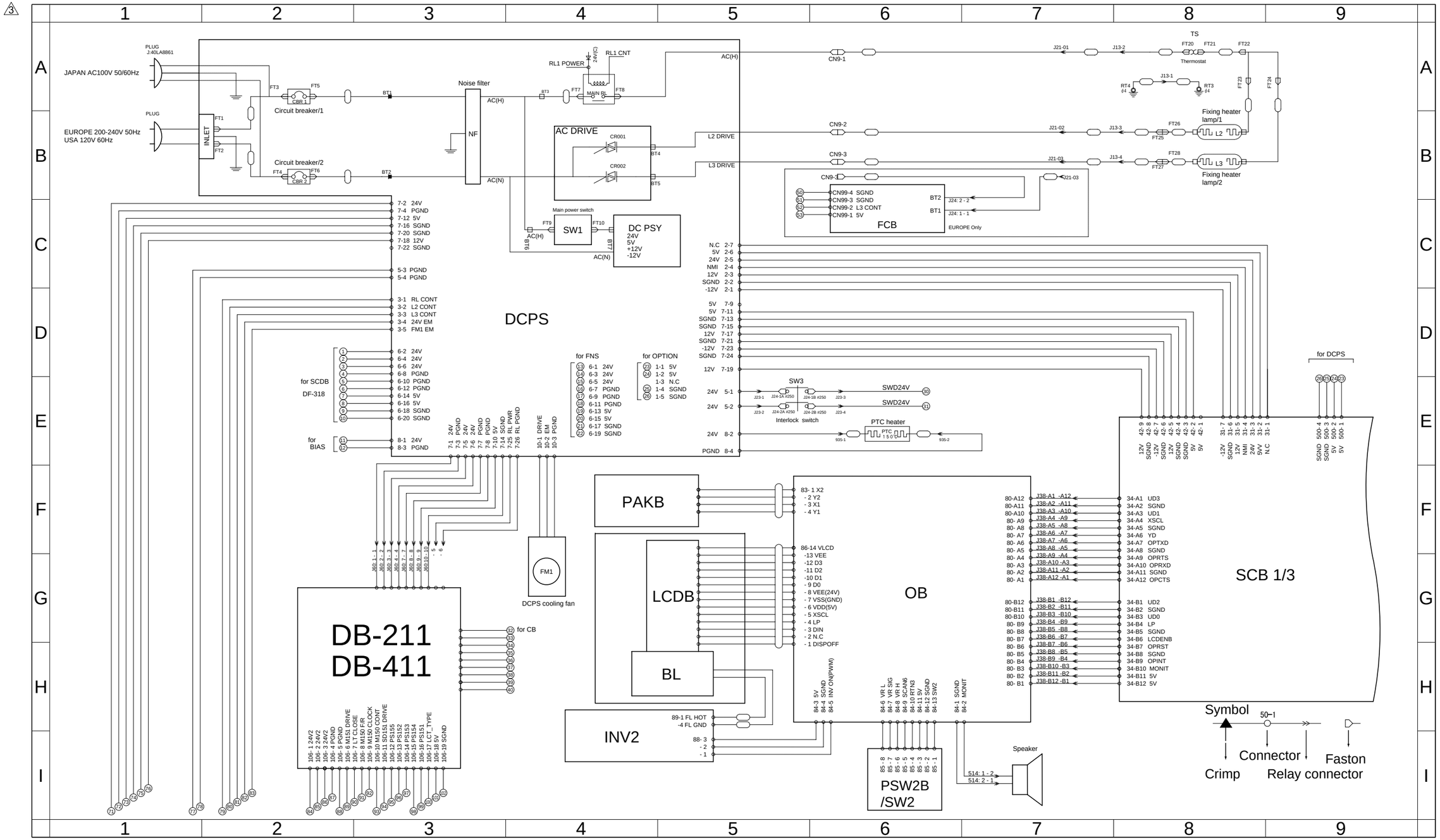
6.7 SK-114 Overall Wiring Diagram



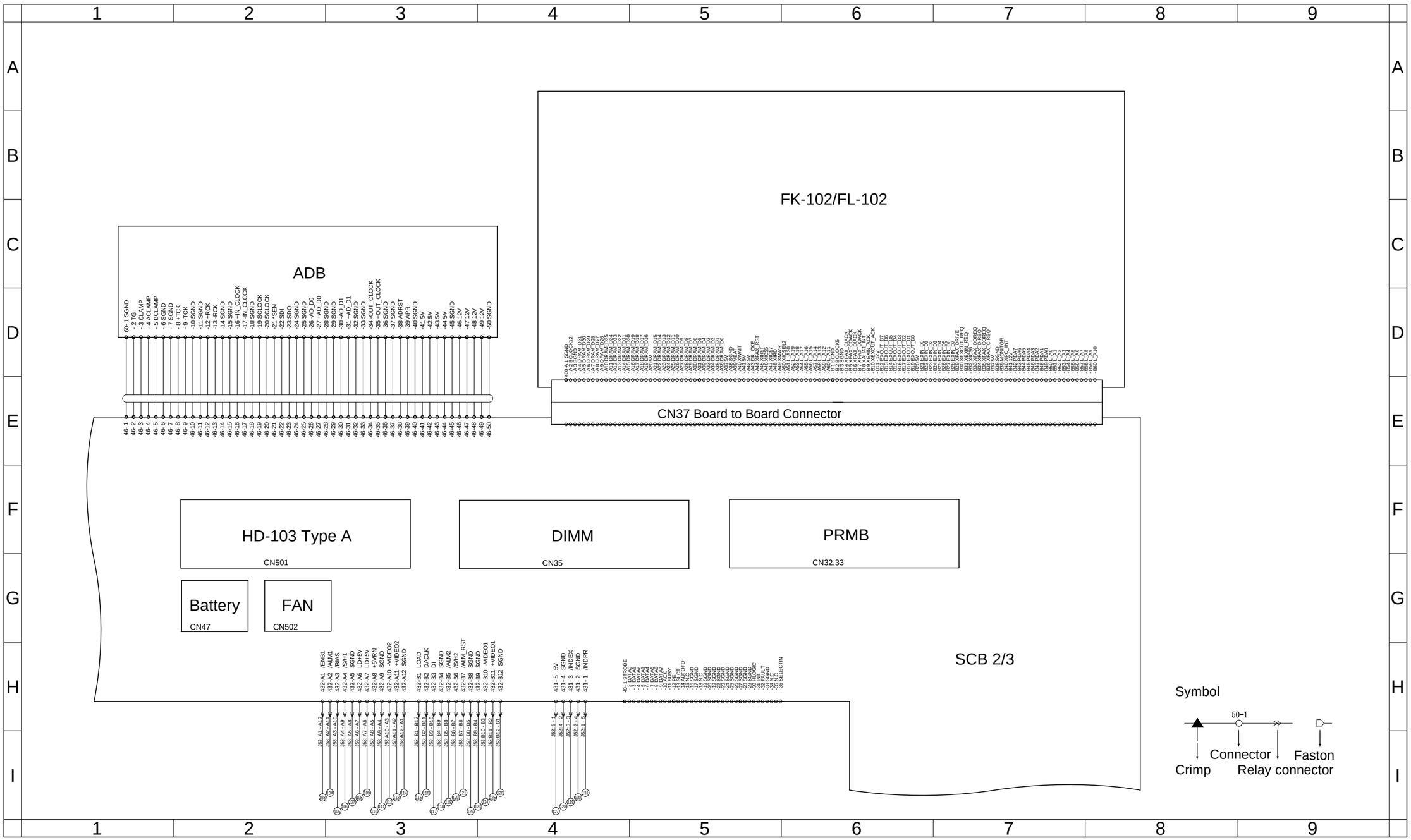
Symbol	Part name	Location
FS-114	FS-114	4-H, 7-E
M8-SK	Saddle exit motor	3-I
M9-SK	Saddle exit open/close motor	3-H
M10-SK	Crease motor	7-G
M13-SK	In & out guide motor	3-H
M14-SK	Layable guide motor	3-G
PC18-SK	Saddle exit roller home position sensor	7-A
PC20-SK	Saddle exit sensor	7-B
PC21-SK	Saddle tray empty sensor	7-A
PC22-SK	Crease roller home position sensor	7-H
PC23-SK	In & out guide home position sensor	7-B
PC25-SK	Transport pulse sensor	7-C
PC26-SK	Layable guide home sensor	7-C
S4-SK	Saddle interlock switch	2-D
PWB-C SK	Main control board	3-A

7. APPENDIX

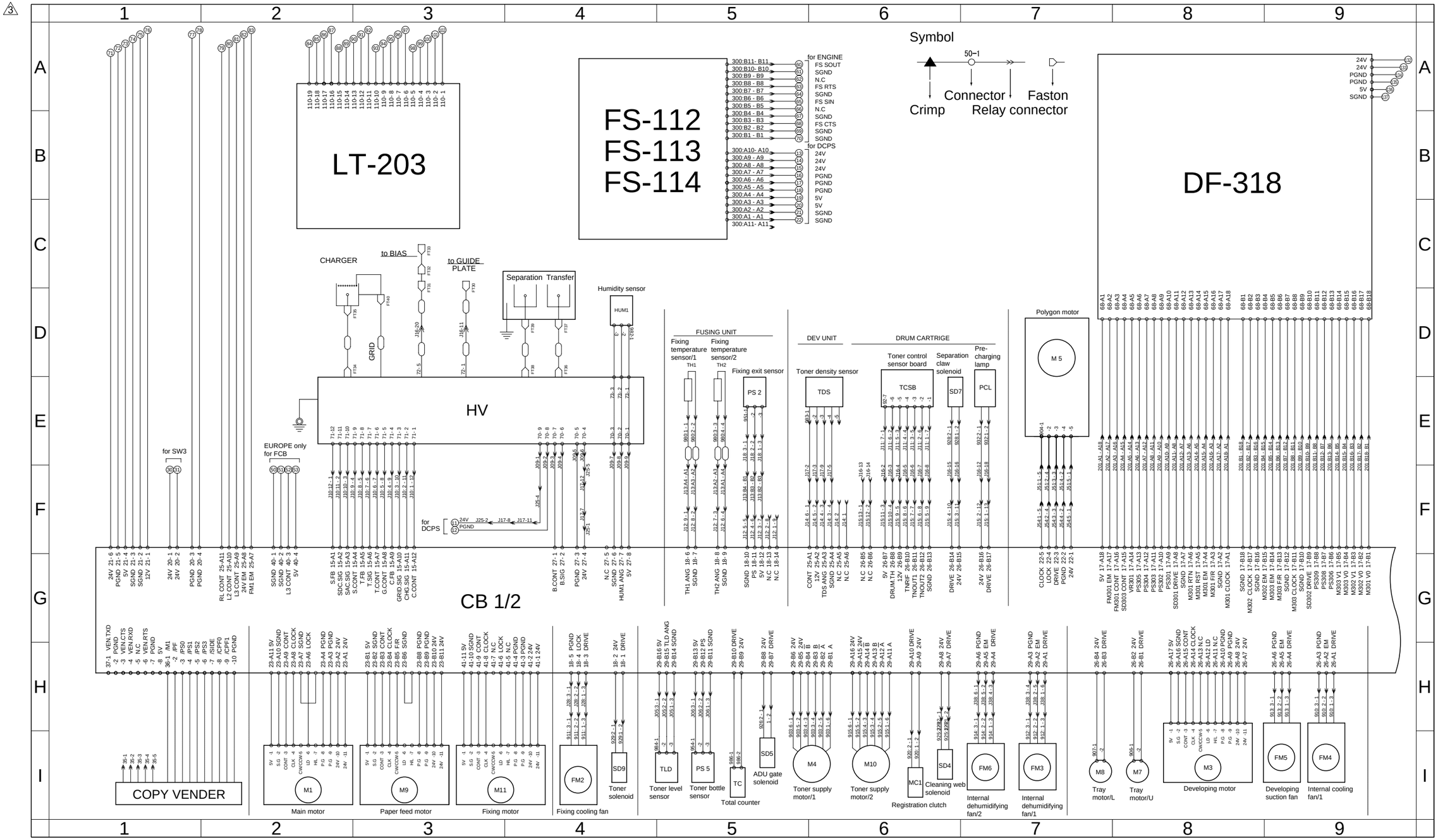
7.1 7145 Overall Wiring Diagram (1/4)



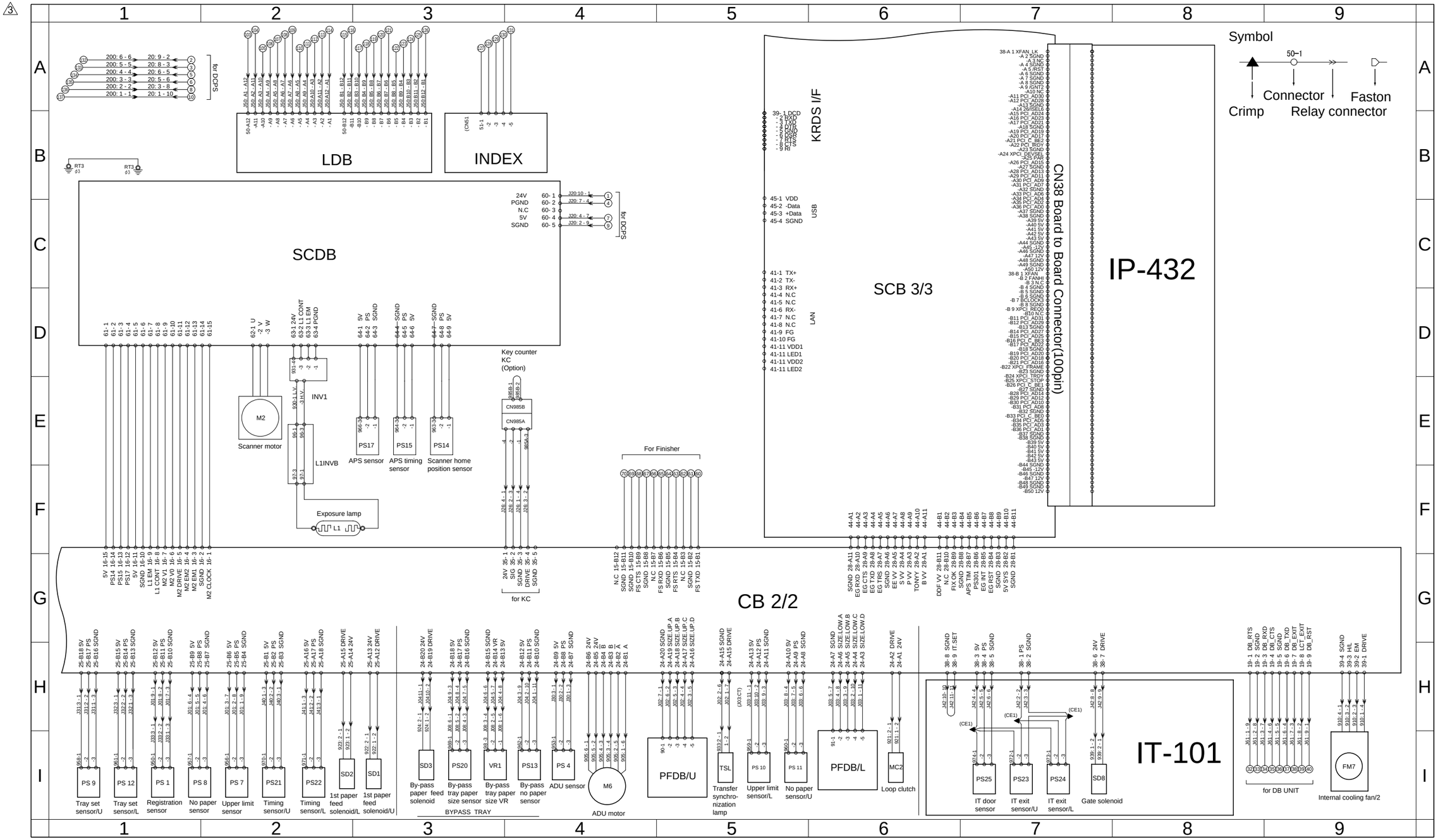
7.2 7145 Overall Wiring Diagram (2/4)



7.3 7145 Overall Wiring Diagram (3/4)



7.4 7145 Overall Wiring Diagram (4/4)

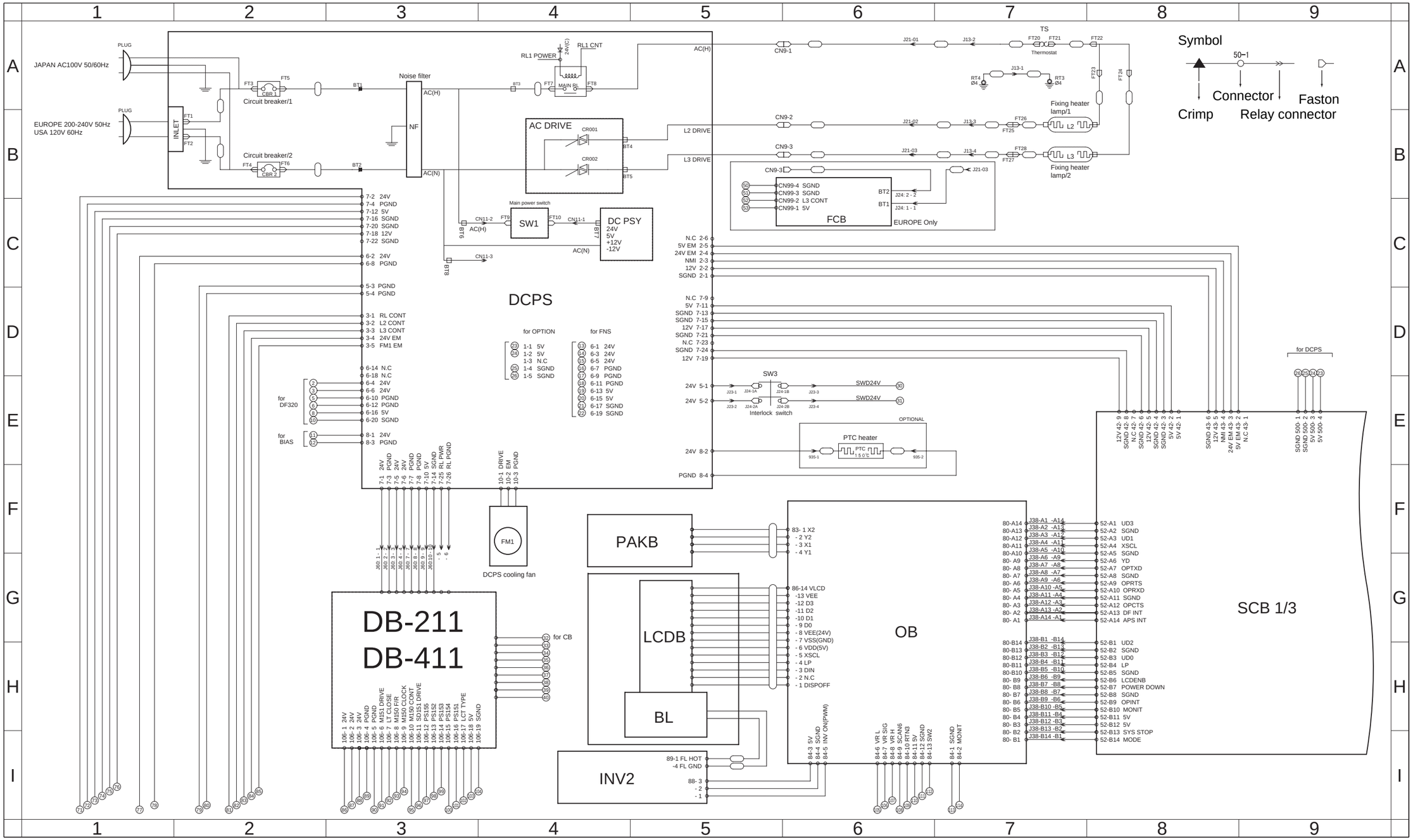


Symbol	Part name	Location
COPY VENDER	COPY VENDER	Appendix-3 1-I
DB-211	DB-211	Appendix-1 2-G
DB-411	DB-411	Appendix-1 2-G
DIMM	DIMM	Appendix-2 3-F
FK-102/FL-102	FK-102/FL-102	Appendix-2 4-A
FS-112	FS-112	Appendix-3 4-A
FS-113	FS-113	Appendix-3 4-A
HD-103 Type A	HD-105	Appendix-2 2-F
IP-432	IP-432	Appendix-4 7-A
IT-101	IT-101	Appendix-4 6-H
KC	Key counter	Appendix-4 3-E
LT-203	LT-203	Appendix-3 2-A
TC	Total counter	Appendix-3 5-I
DF-318	DF-318	Appendix-3 7-A
ADB	A/D conversion board	Appendix-2 1-C
CB	Main control board	Appendix-3 1-F
FCB	Fixing control board	Appendix-1 6-B
INDEX	Index sensor board	Appendix-4 3-B
L1INVB	Exposure lamp power supply board	Appendix-4 2-E
LCDB	Display board	Appendix-1 4-F
LDB	LD drive board	Appendix-4 2-B
OB	Operation board	Appendix-1 5-F
PAKB	Panel key board	Appendix-1 4-F
PFDB/L	Paper feed detection board /L	Appendix-4 5-I
PFDB/U	Paper feed detection board /U	Appendix-4 4-I
PRMB	Parameter memory board	Appendix-2 5-F
PSW2B	Power SW2 board	Appendix-1 6-I
SCB	System control board	Appendix-1 8-E
SCDB	Scanner drive board	Appendix-4 1-B
TCSB	Toner control sensor board	Appendix-3 6-D
DCPS	DC power supply unit	Appendix-1 1-A
HV	High voltage unit	Appendix-3 2-E
INV1	Exposure lamp inverter	Appendix-4 2-D
INV2	Display inverter	Appendix-1 4-H
CBR1	Circuit breaker /1	Appendix-1 2-A
CBR2	Circuit breaker /2	Appendix-1 2-B
NF	Noise filter	Appendix-1 3-A
L1	Exposure lamp	Appendix-4 2-F
L2	Fixing heater lamp /1	Appendix-1 8-B
L3	Fixing heater lamp /2	Appendix-1 8-B
PCL	Pre-charging lamp	Appendix-3 7-D
TSL	Transfer synchronization lamp	Appendix-4 5-I
LCD	LCD	Appendix-1 4-F
BL	Back light	Appendix-1 4-H
M1	Main motor	Appendix-3 2-I

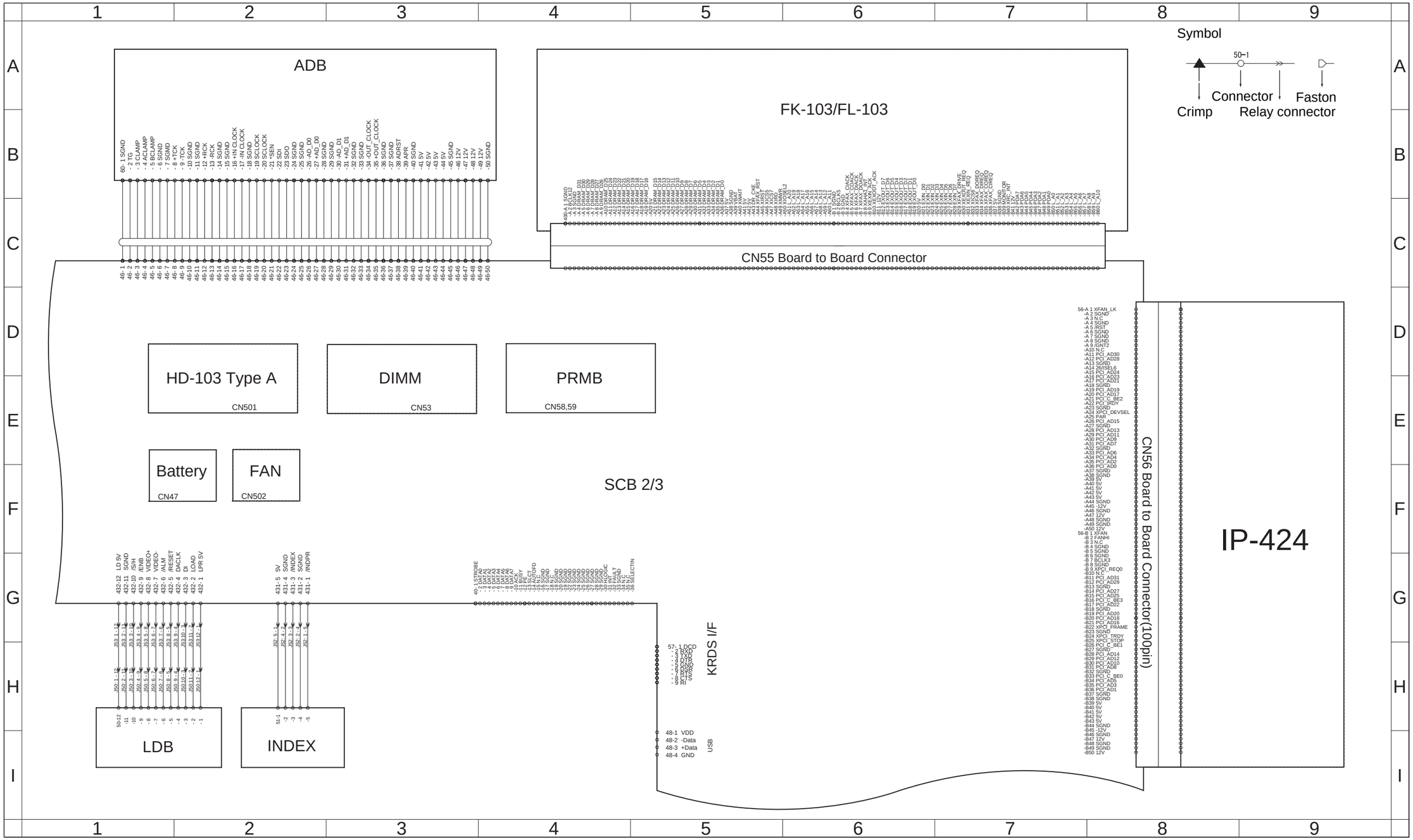
Symbol	Part name	Location
M2	Scanner motor	Appendix-4 2-E
M3	Developing motor	Appendix-3 8-I
M4	Toner supply motor /1	Appendix-3 5-I
M5	Polygon motor	Appendix-3 7-D
M6	ADU motor	Appendix-4 4-I
M7	Tray motor /U	Appendix-3 8-I
M8	Tray motor /L	Appendix-3 7-I
M9	Paper feed motor	Appendix-3 3-I
M10	Toner supply motor /2	Appendix-3 6-I
M11	Fixing motor	Appendix-3 3-I
FM1	DCPS cooling fan	Appendix-1 4-F
FM2	Fixing cooling fan	Appendix-3 4-I
FM3	Internal dehumidifying fan /1	Appendix-3 7-I
FM4	Internal cooling fan /1	Appendix-3 9-I
FM5	Developing suction fan	Appendix-3 9-I
FM6	Internal dehumidifying fan /2	Appendix-3 7-I
FM7	Internal cooling fan /2	Appendix-4 9-I
MC1	Registration clutch	Appendix-3 6-I
MC2	Loop clutch	Appendix-4 6-I
SD1	1st paper feed solenoid /U	Appendix-4 3-I
SD2	1st paper feed solenoid /L	Appendix-4 2-I
SD3	By-pass paper feed solenoid	Appendix-4 3-I
SD4	Cleaning web solenoid	Appendix-3 6-I
SD5	ADU gate solenoid	Appendix-3 5-I
SD7	Separation claw solenoid	Appendix-3 6-E
SD8	Gate solenoid	Appendix-4 7-I
SD9	Toner solenoid	Appendix-3 4-I
PS1	Registration sensor	Appendix-4 1-I
PS2	Fixing exit sensor	Appendix-3 5-E
PS4	ADU sensor	Appendix-4 4-I
PS5	Toner bottle sensor	Appendix-3 5-I
PS7	Upper limit sensor /U	Appendix-4 2-I
PS8	No paper sensor /U	Appendix-4 1-I
PS9	Tray set sensor /U	Appendix-4 1-I
PS10	Upper limit sensor /L	Appendix-4 5-I
PS11	No paper sensor /L	Appendix-4 5-I
PS12	Tray set sensor /L	Appendix-4 1-I
PS13	By-pass no paper sensor	Appendix-4 4-I
PS14	Scanner home position sensor	Appendix-4 3-E
PS15	APS timing sensor	Appendix-4 3-E
PS17	APS sensor	Appendix-4 3-E
PS20	By-pass tray paper size sensor	Appendix-4 3-I
PS21	Timing sensor /U	Appendix-4 2-I
PS22	Timing sensor /L	Appendix-4 2-I
PS23	IT exit sensor /U	Appendix-4 7-I

Symbol	Part name	Location
PS24	IT exit sensor /L	Appendix-4 7-I
PS25	IT door sensor	Appendix-4 7-I
TH1	Fixing temperature sensor /1	Appendix-3 5-E
TH2	Fixing temperature sensor /2	Appendix-3 5-E
HUM1	Humidity sensor	Appendix-3 4-D
TDS	Toner density sensor	Appendix-3 5-E
TLD	Toner level sensor	Appendix-3 5-I
TS	Thermostat	Appendix-1 8-A
SW1	Main power switch	Appendix-1 4-C
SW2	Sub power switch	Appendix-1 6-I
SW3	Interlock switch	Appendix-1 5-E
VR1	By-pass tray paper size VR	Appendix-4 3-I
PTC	PTC heater	Appendix-1 6-E
BATTERY	Battery	Appendix-2 2-G

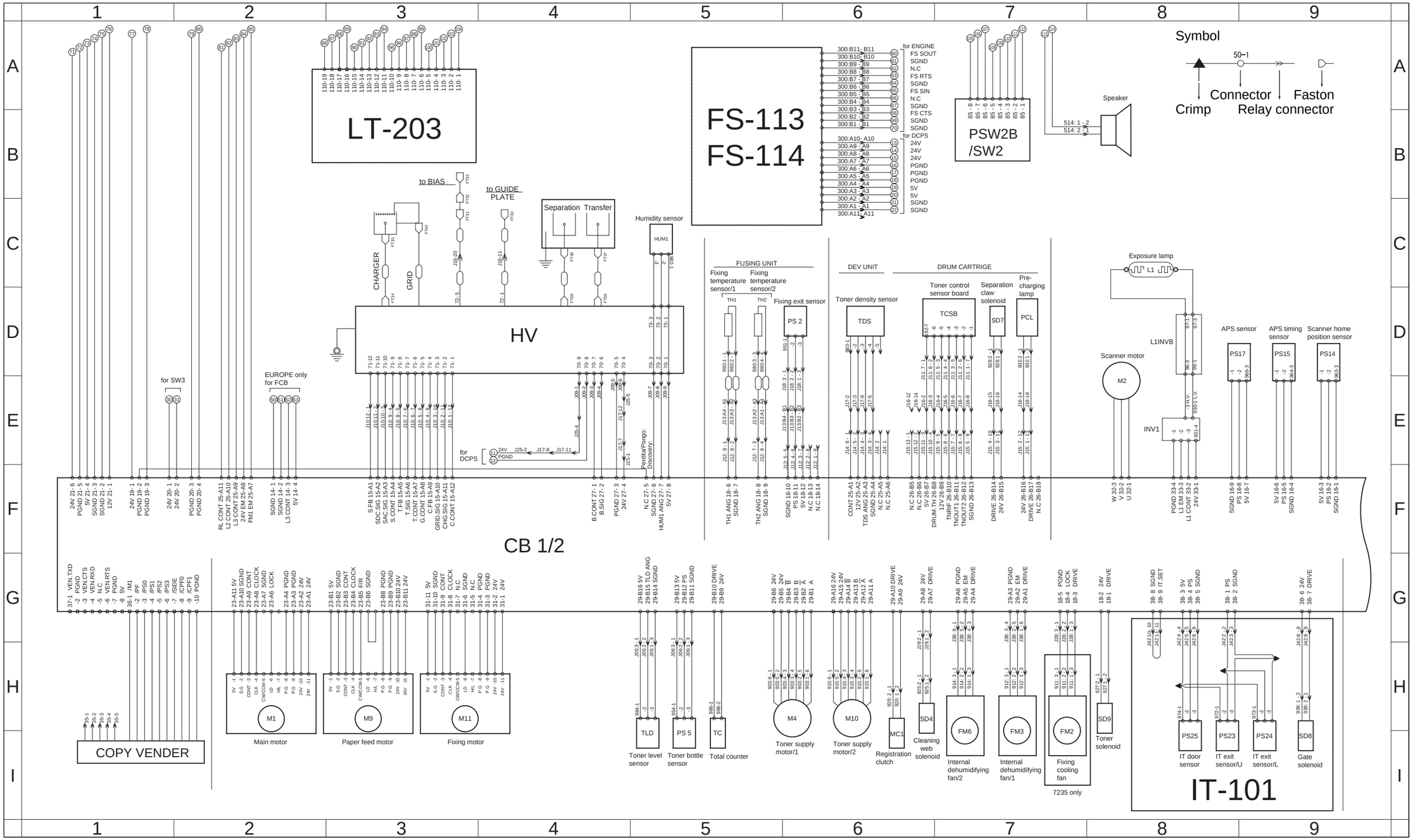
⚠3 7.5 7235/7228/7222 Overall Wiring Diagram (1/4)



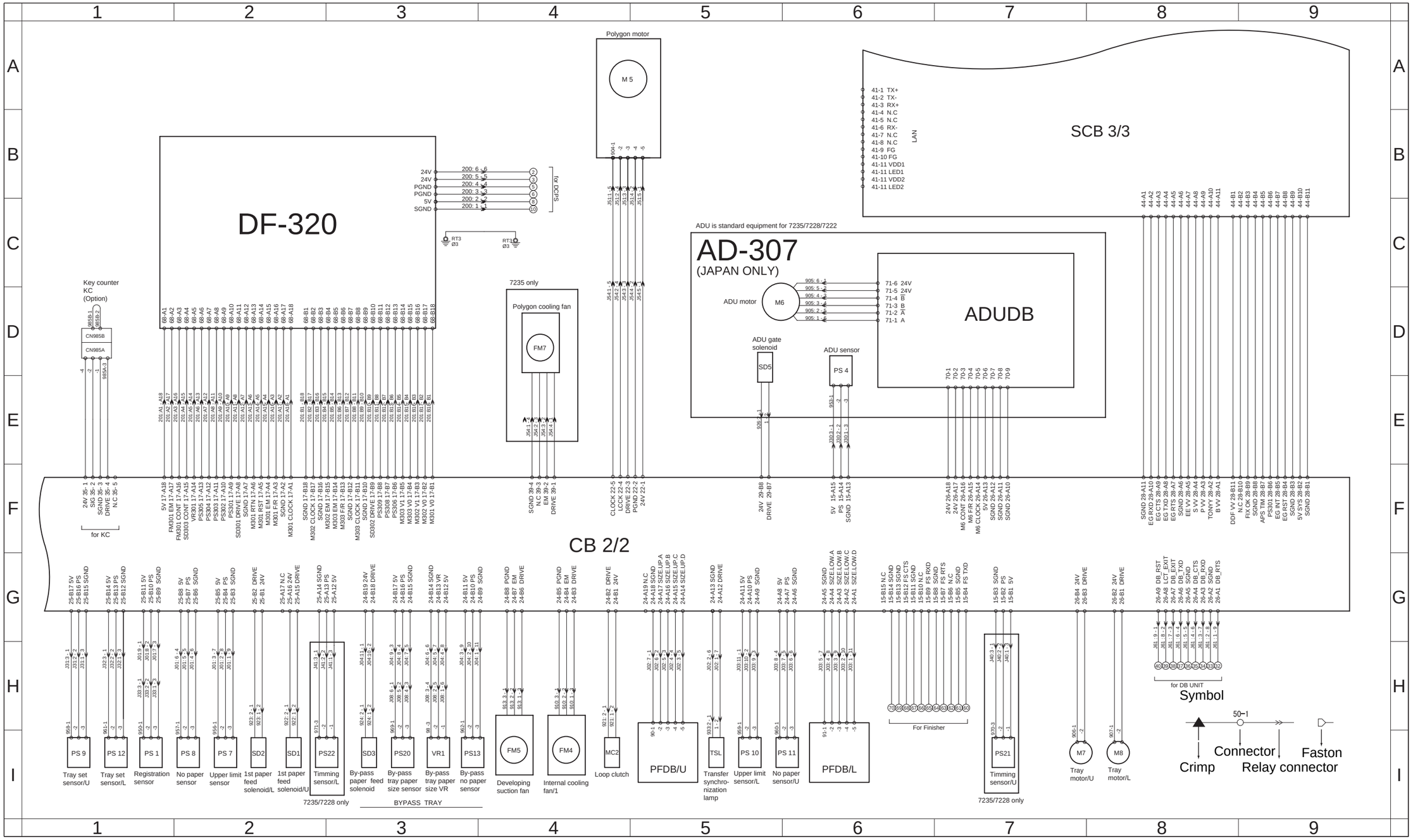
③ 7.6 7235/7228/7222 Overall Wiring Diagram (2/4)



⚠3 7.7 7235/7228/7222 Overall Wiring Diagram (3/4)



⚠3 7.8 7235/7228/7222 Overall Wiring Diagram (4/4)

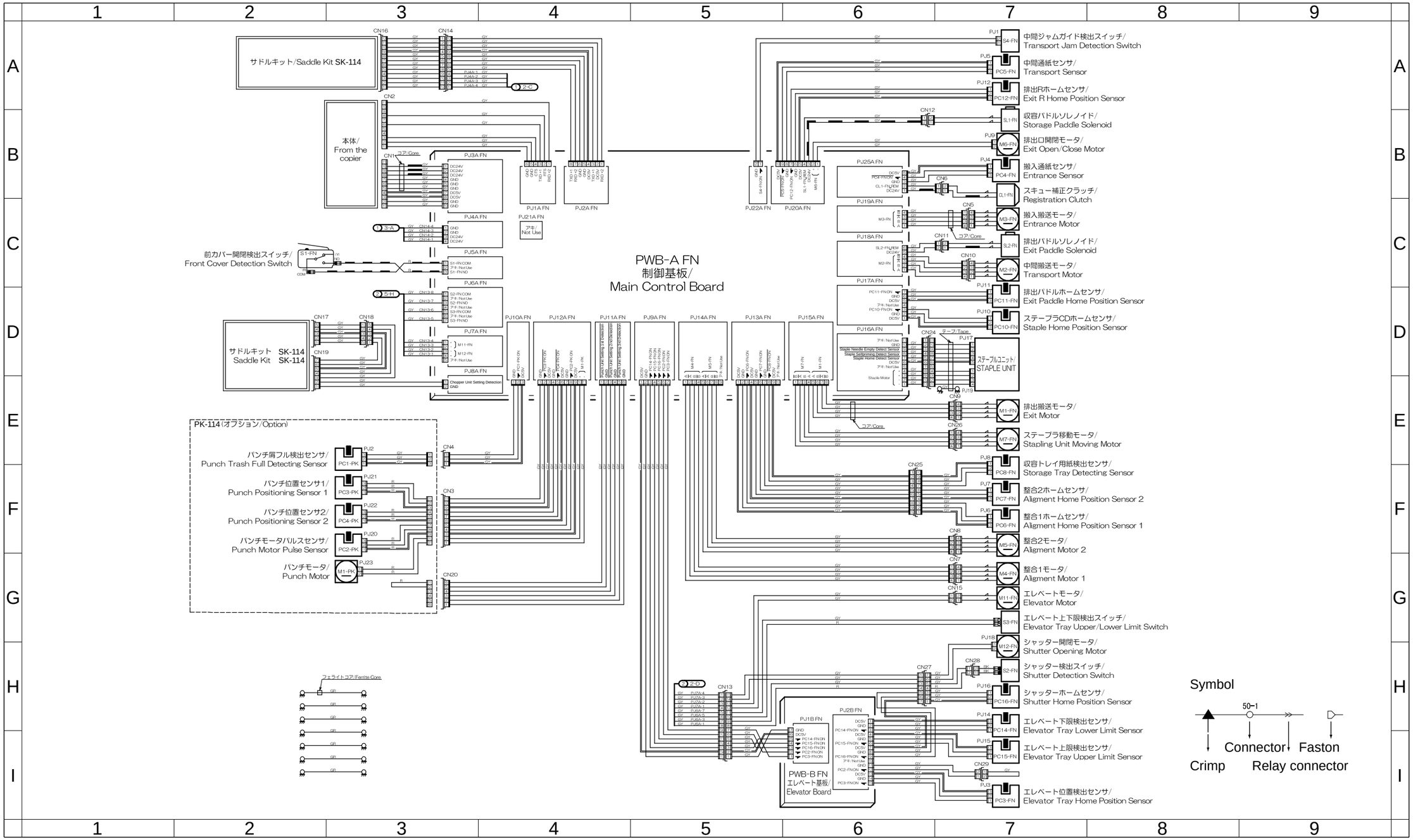


Symbol	Part name	Location
COPY VENDER	COPY VENDER	Appendix-3 1-I
AD-307	AD-307	Appendix-4 5-C
DB-211	DB-211	Appendix-1 2-G
DB-411	DB-411	Appendix-1 2-G
DF-320	DF-320	Appendix-4 1-B
DIMM	DIMM	Appendix-2 3-D
FK-103/FL-103	FK-103/FL-103	Appendix-2 4-A
FS-113	FS-113	Appendix-3 5-A
FS-114	FS-114	Appendix-3 5-A
HD-103 Type A	HD-103	Appendix-2 1-D
IP-424	IP-424	Appendix-2 8-D
IT-101	IT-101	Appendix-3 8-G
KC	Key counter	Appendix-4 1-D
LT-203	LT-203	Appendix-3 2-A
TC	Total counter	Appendix-3 5-H
ADB	A/D conversion board	Appendix-2 1-A
ADUDB	ADU drive board	Appendix-4 6-C
CB	Main control board	Appendix-3 1-F
FCB	Fixing control board	Appendix-1 5-B
INDEX	Index sensor board	Appendix-2 2-H
L1INVB	Exposure lamp power supply board	Appendix-3 8-D
LCDB	Display board	Appendix-1 5-G
LDB	LD drive board	Appendix-2 1-H
OB	Operation board	Appendix-1 6-F
PAKB	Panel key board	Appendix-1 4-F
PFDB/L	Paper feed detection board /L	Appendix-4 6-H
PFDB/U	Paper feed detection board /U	Appendix-4 5-H
PRMB	Parameter memory board	Appendix-2 4-D
PSW2B	Power SW2 board	Appendix-3 7-A
SCB	System control board	Appendix-1 8-E
TCSB	Toner control sensor board	Appendix-3 6-D
DCPS	DC power supply unit	Appendix-1 1-A
HV	High voltage unit	Appendix-3 3-D
INV1	Exposure lamp inverter	Appendix-3 8-E
INV2	Display inverter	Appendix-1 4-I
CBR1	Circuit breaker /1	Appendix-1 2-A
CBR2	Circuit breaker /2	Appendix-1 2-B
NF	Noise filter	Appendix-1 3-A
L1	Exposure lamp	Appendix-3 8-C
L2	Fixing heater lamp /1	Appendix-1 7-B
L3	Fixing heater lamp /2	Appendix-1 7-B
PCL	Pre-charging lamp	Appendix-3 7-D
TSL	Transfer synchronization lamp	Appendix-4 5-I
LCD	LCD	Appendix-1 5-G
BL	Back light	Appendix-1 4-H

Symbol	Part name	Location
M1	Main motor	Appendix-3 2-H
M2	Scanner motor	Appendix-3 8-D
M4	Toner supply motor /1	Appendix-3 5-H
M5	Polygon motor	Appendix-4 4-A
M6	ADU motor	Appendix-4 5-D
M7	Tray motor /U	Appendix-4 7-I
M8	Tray motor /L	Appendix-4 8-I
M9	Paper feed motor	Appendix-3 3-H
M10	Toner supply motor /2	Appendix-3 6-H
M11	Fixing motor	Appendix-4 7-I
FM1	DCPS cooling fan	Appendix-1 4-F
FM2	Fixing cooling fan	Appendix-3 7-H
FM3	Internal dehumidifying fan /1	Appendix-3 7-H
FM4	Internal cooling fan /1	Appendix-4 4-I
FM5	Developing suction fan	Appendix-4 4-I
FM6	Internal dehumidifying fan /2	Appendix-3 7-H
FM7	Polygon cooling fan	Appendix-4 4-D
MC1	Registration clutch	Appendix-3 6-H
MC2	Loop clutch	Appendix-4 4-I
SD1	1st paper feed solenoid /U	Appendix-4 2-I
SD2	1st paper feed solenoid /L	Appendix-4 2-I
SD3	By-pass paper feed solenoid	Appendix-4 3-I
SD4	Cleaning web solenoid	Appendix-3 6-H
SD5	ADU gate solenoid	Appendix-4 5-D
SD7	Separation claw solenoid	Appendix-3 7-D
SD8	Gate solenoid	Appendix-3 9-H
SD9	Toner solenoid	Appendix-3 8-H
PS1	Registration sensor	Appendix-4 1-I
PS2	Fixing exit sensor	Appendix-3 6-D
PS4	ADU sensor	Appendix-4 6-D
PS5	Toner bottle sensor	Appendix-3 5-H
PS7	Upper limit sensor /U	Appendix-4 2-I
PS8	No paper sensor /L	Appendix-4 2-I
PS9	Tray set sensor /U	Appendix-4 1-I
PS10	Upper limit sensor /L	Appendix-4 5-I
PS11	No paper sensor /U	Appendix-4 5-I
PS12	Tray set sensor /L	Appendix-4 1-I
PS13	By-pass no paper sensor	Appendix-4 3-I
PS14	Scanner home position sensor	Appendix-3 9-D
PS15	APS timing sensor	Appendix-3 9-D
PS17	APS sensor	Appendix-3 8-D
PS20	By-pass tray paper size sensor	Appendix-4 3-I
PS21	Timing sensor /U	Appendix-4 7-I
PS22	Timing sensor /L	Appendix-4 2-I
PS23	IT exit sensor /U	Appendix-3 8-H

Symbol	Part name	Location
PS24	IT exit sensor /L	Appendix-3 9-H
PS25	IT door sensor	Appendix-3 8-H
TH1	Fixing temperature sensor /1	Appendix-3 5-D
TH2	Fixing temperature sensor /2	Appendix-3 5-D
HUM1	Humidity sensor	Appendix-3 5-C
TDS	Toner density sensor	Appendix-3 6-D
TLD	Toner level sensor	Appendix-3 5-H
TS	Thermostat	Appendix-1 7-A
SW1	Main power switch	Appendix-1 4-C
SW2	Sub power switch	Appendix-3 7-A
SW3	Interlock switch	Appendix-1 5-E
VR1	By-pass tray paper size VR	Appendix-4 3-I
PTC	PTC heater	Appendix-1 6-E
BATTERY	Battery	Appendix-2 1-E

7.9 FS-114 Overall Wiring Diagram



Symbol	Part name	Location
PK-114	PK-114	1-E
SK-114	SK-114	1-A, 1-D
CL1-FN	Registration clutch	7-B
M1-FN	Exit motor	7-E
M2-FN	Transport motor	7-C
M3-FN	Entrance motor	7-C
M4-FN	Allignment motor 1	7-G
M5-FN	Allignment motor 2	7-F
M6-FN	Exit open/close motor	7-B
M7-FN	Stapling unit moving motor	7-E
M11-FN	Elevator motor	7-G
M12-FN	Shutter opening motor	7-G
PC3-FN	Elevator tray home position sensor	7-I
PC4-FN	Entrance sensor	7-B
PC5-FN	Transport sensor	7-A
PC6-FN	Alignment home position sensor 1	7-F
PC7-FN	Alignment home position sensor 2	7-F
PC8-FN	Storage tray detecting sensor	7-E
PC10-FN	Staple home position sensor	7-D
PC11-FN	Exit paddle home position sensor	7-D
PC12-FN	Exit roller home position sensor	7-A
PC14-FN	Elevator tray lower limit sensor	7-H
PC15-FN	Top face detection sensor	7-I
PC16-FN	Shutter home position sensor	7-H
S1-FN	Front cover open/close detection SW	2-C
S2-FN	Shutter detection SW	7-H
S3-FN	Elevate tray upper/lower limit SW	7-G
S4-FN	Transport jam detection SW	7-A
SL1-FN	Storage paddle solenoid	7-B
SL2-FN	Exit paddle solenoid	7-C
M1-PK	Punch motor	2-G
PC1-PK	Punch trash full sensor	2-E
PC2-PK	Punch motor pulse sensor	2-F
PC3-PK	Punch positioning sensor 1	2-F
PC4-PK	Punch positioning sensor 2	2-F
PWB-A FN	Main control board	3-B
PWB-B FN	Elevator board	5-H