

Product: 2004 Konica Minolta Di1611/Di2011,AF-12/AFR-19/AD-17/PF-126/MB-6/JS-204/OT-103/NC-6 Service Repair Work
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SERVICE MANUAL

FIELD SERVICE

Di1611/Di2011

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. 2004.3
Ver. 1.0

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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 product as well as the risk of damage to the product, 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 product 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 product while servicing the product 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 product 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 product, 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:

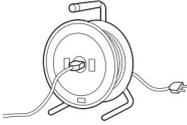
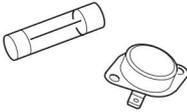
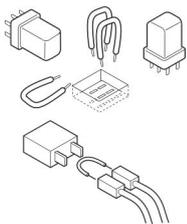
<p> :Precaution when servicing the product.</p>	<p> General precaution</p>	<p> Electric hazard</p>	<p> High temperature</p>
<p> :Prohibition when servicing the product.</p>	<p> General prohibition</p>	<p> Do not touch with wet hand</p>	<p> Do not disassemble</p>
<p> :Direction when servicing the product.</p>	<p> General instruction</p>	<p> Unplug</p>	<p> Ground/ Earth</p>

SAFETY WARNINGS

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

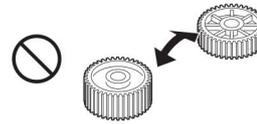
Konica Minolta brand products are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Product 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	
<ul style="list-style-type: none"> Using any cables or power cord not specified by KMBT. 	 
<ul style="list-style-type: none"> Using any fuse or thermostat not specified by KMBT. Safety will not be assured, leading to a risk of fire and injury. 	 
<ul style="list-style-type: none"> Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object. 	 
<ul style="list-style-type: none"> Disabling relay functions (such as wedging paper between relay contacts) 	 
<ul style="list-style-type: none"> Disabling safety functions (interlocks, safety circuits, etc.) Safety will not be assured, leading to a risk of fire and injury. 	
<ul style="list-style-type: none"> Making any modification to the product unless instructed by KMBT 	

⚠ DANGER: PROHIBITED ACTIONS

- Using parts not specified by KMBT



2. CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

Konica Minolta brand products 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.

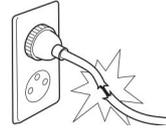
Contact problems may lead to increased resistance, overheating, and the risk of fire.



⚠ WARNING: Power Plug and Cord

- 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 plug and connector on each end) specified by KMBT. Using the damaged power cord may result in fire or electric shock.



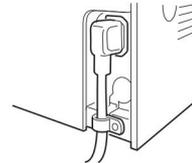
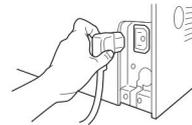
- When using the power cord (inlet type) that came with this product, be sure to observe the following precautions:

a. Make sure the connector is securely inserted in the inlet on the rear panel of the product.

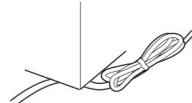
Secure the cord with a fixture properly.

b. If the power cord or sheath is damaged, replace with a new power cord (with plugs on both ends) specified by KMBT.

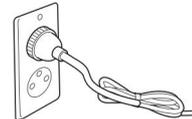
If the power cord (inlet type) is not connected to the product securely, a contact problem may lead to increased resistance, overheating, and risk of fire.



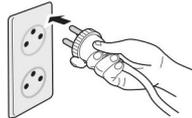
- Check whether the power cord is not stepped on or pinched by a table and so on. Overheating may occur there, leading to a risk of fire.



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



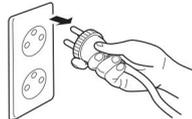
- Check whether dust is collected around the power plug and wall outlet. Using the power plug and wall outlet without removing dust may result in fire.



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

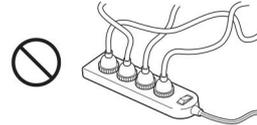


- When unplugging the power cord, grasp the plug, not the cable. The cable may be broken, leading to a risk of fire and electric shock.



⚠ WARNING: Wiring

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

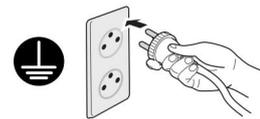


- When an extension cord is required, use a specified one. Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.
Do not use an extension cable reel with the cable taken up. Fire may result.



⚠ WARNING: Ground connection

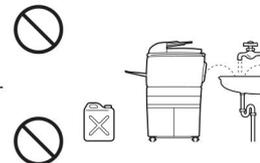
- Check whether the product is grounded properly. If current leakage occurs in an ungrounded product, you may suffer electric shock while operating the product. Connect power plug to grounded wall outlet.



2. Installation Requirements

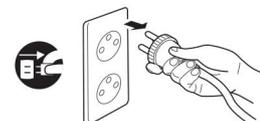
⚠ WARNING: Prohibited Installation Place

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



⚠ WARNING: When not using product for a long time

- When the product 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.

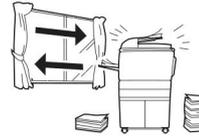


 CAUTION: Ventilation

- The product generates ozone gas during operation, but it will not be harmful to the human body.

If a bad smell of ozone is present in the following cases, ventilate the room.

- a. When the product is used in a poorly ventilated room
- b. When taking a lot of copies
- c. When using multiple products at the same time



 CAUTION: Fixing

- Be sure to lock the caster stoppers.

In the case of an earthquake and so on, the product may slide, leading to a injury.



 CAUTION: Inspection before Servicing

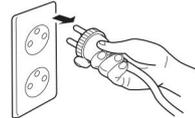
- Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure, using only the prescribed tools. Do not make any adjustment not described in the documentation.

If the prescribed procedure or tool is not used, the product may break and a risk of injury or fire exists.

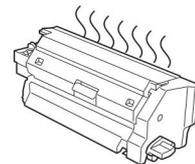


- Before conducting an inspection, be sure to disconnect the power plugs from the product and options.

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.



⚠ WARNING: Work Performed with the product Powered

- Take every care when making adjustments or performing an operation check with the product 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.



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

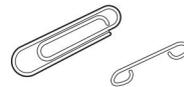


⚠ WARNING: Safety Checkpoints

- 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 product.
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.



- 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 product trouble or fire.

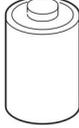
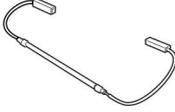
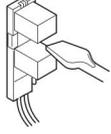


- Check high-voltage cables and sheaths for any damage.
Current can leak, leading to a risk of electric shock or fire.



- 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.



 WARNING: Safety Checkpoints		
<ul style="list-style-type: none"> • Before disassembling or adjusting the write unit (P/H 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. 		
<ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • 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 product (e.g., for clearing paper jam). 		
<ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • 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 product trouble, electric shock, and fire exists. 		

⚠ WARNING: HANDLING OF CONSUMABLE

- 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.

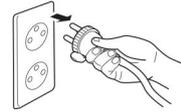


- Never throw the used cartridge and toner into fire. You may be burned due to dust explosion.



⚠ CAUTION: 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 product 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. 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 product on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

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MAINTENANCE

1. SAFETY INFORMATION

1.1 Laser Safety

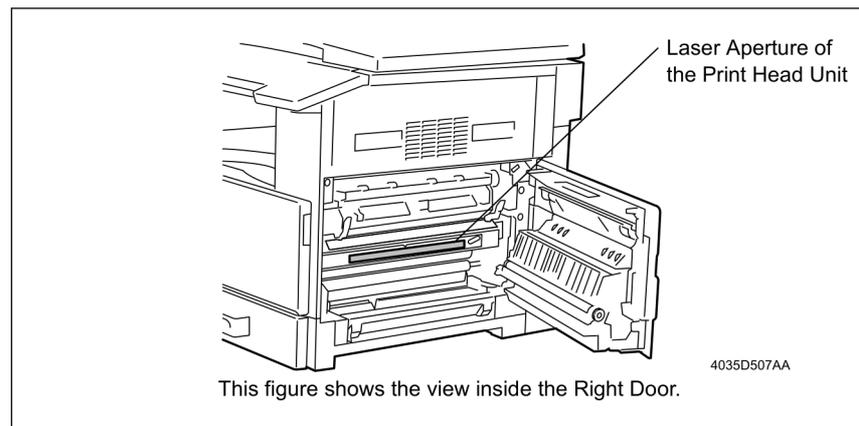
- This is a digital machine certified as a class 1 laser product. There is no possibility of danger from a laser, provided the machine is serviced according to the instruction in this manual.

1.2 Internal Laser Radiation

Semiconductor laser	
Maximum power of the laser diode	5 mW
Maximum average radiation power(*)	6.32 μ W
Wavelength	770-795 nm

*:Laser Aperture of the Print Head Unit

- This product employs a Class 3b laser diode that emits an invisible laser beam. The laser diode and the scanning polygon mirror are incorporated in the print head unit.
- The print head unit is NOT A FIELD SERVICE ITEM. Therefore, the print head unit should not be opened under any circumstances.



**the U.S.A., Canada
(CDRH Regulation)**

- This machine is certified as a Class I Laser product under Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. Compliance is mandatory for Laser products marketed in the United States and is reported to the Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration of the U.S. Department of Health and Human Services (DHHS). This means that the device does not produce hazardous laser radiation.
- The label shown to page P-16 indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

CAUTION

Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

All Areas

CAUTION

Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

Denmark

ADVARSEL

Usynlig Laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. Klasse 1 laser produkt der opfylder IEC60825 sikkerheds kravene.

Halvlederlaser	
Laserdiodens højeste styrke	5 mW
Bølgelængden	770-795 nm

Finland, Sweden**VARO!**

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

LOUKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

VAROITUS!

Laitteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

Puolijohdelaser	
Laserdiodin suurin teho	5 mW
Aallonpituus	770-795 nm

WARNING!

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

Halvledarlaser	
Den maximala effekten för laserdioden	5 mW
Våglängden	770-795 nm

WARNING!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

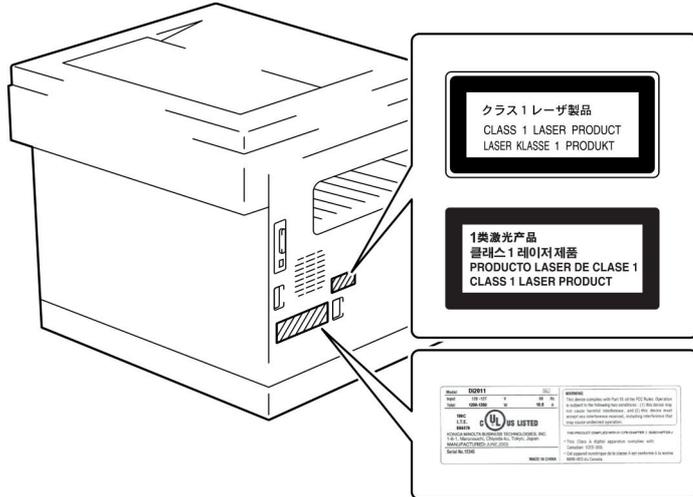
Norway**ADVERSEL**

Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes for usynlig laserstråling som overskrider grensen for laser klass 1.

Halvleder laser	
Maksimal effekt till laserdioden	5 mW
Bølgelengde	770-795 nm

1.3 Laser Safety Label

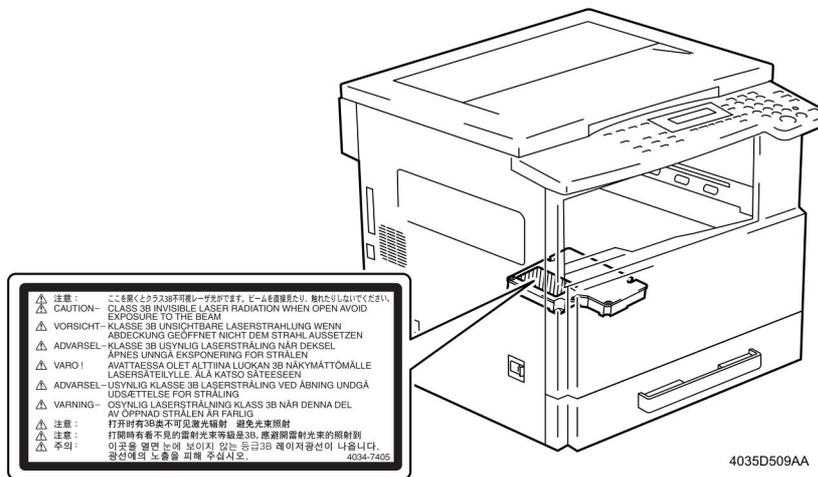
- A laser safety labels is attached to the outside of the machine as shown below.



4035D510CA

1.4 Laser Caution Label

- A laser caution label is attached to the inside of the machine as shown below.



4035D509AA

1.5 Precautions for Handling the Laser Equipment

- When laser protective goggles are to be used, select ones with a lens conforming to the above specifications.
- When a disassembly job needs to be performed in the laser beam path, such as when working around the printerhead and PC Drum, be sure first to turn the copier OFF.
- If the job requires that the copier be left ON, take off your watch and ring and wear laser protective goggles.
- A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools on the user's premises.

2. OTHER PRECAUTIONS

CAUTION

Double pole / neutral fusing

ATTENTION

Double pôle / fusible sur le neutre.

- * A fuse is installed in each of both L and N lines of the power source of this machine. If the machine is brought to a stop as a result of the fuse on the N line having been blown for some reason, there is still the power source voltage being applied to the primary circuit of the machine. To prevent an electric shock, be sure to unplug the power cord of the machine before attempting to service the machine.

3. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

3.1 Parts That Must Not be Touched

3.1.1 Red Painted Screws

Purpose of Application of Red Paint

Red painted screws show that the assembly or unit secured can only be adjusted or set at the factory and shall not be readjusted, set, or removed in the field.

If it becomes unavoidably necessary to disassemble any of these assemblies and units, disassembly may be done provided that the conditions permitting reassembly are met.

Note also that when two or more screws are used on the part in question, only one representative screw may be marked with red paint.

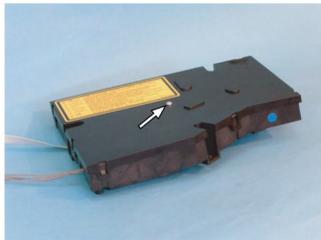
3.1.2 Variable resistors on board

Do not turn the variable resistors on boards for which no adjusting instructions are given in ADJUSTMENT.

3.1.3 Other Screws not Marked with Red Paint

[PH Unit Section]

PH Unit



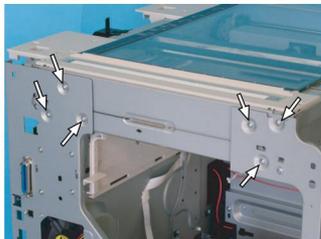
PH Unit Base



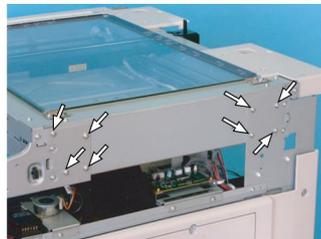
4035D137AA

[IR Unit Section]

Left Side Face



Right Side Face

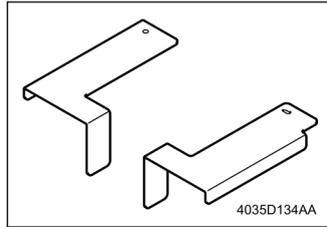


4035D136AA

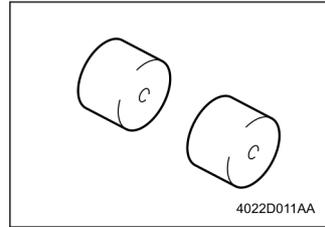
4. SERVICE TOOLS

4.1 Jigs and Tools

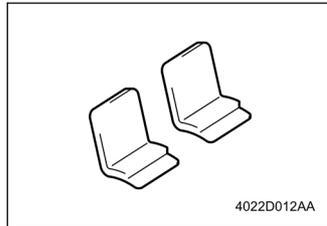
<Scanner/Mirrors Carriage Positioning Jigs>



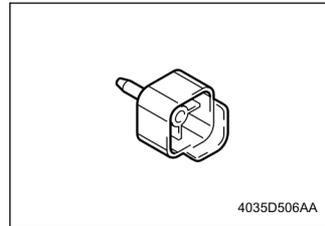
<Ds Collar Positioning Jigs>



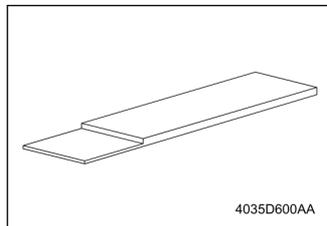
<Db Gap Adjusting Jigs>



<PC Positioning Jig>



<Gauge>



5. MAINTENANCE SCHEDULE

5.1 PM Parts List

	PM Parts	Cycle (K=1,000)		Ref. Page
		Clean	Replace	
Paper Take-Up/ Transport Section	Paper Take-Up Roll	When a malfunction occurs	150k	☞ 1-10
	Paper Separator Roll Assy	When a malfunction occurs	150k	☞ 1-10
	Paper Dust Remover	When a malfunction occurs	40k	☞ 1-12
	Upper Synchronizing Roller	When a malfunction occurs	–	☞ 1-11
	Lower Synchronizing Roller	When a malfunction occurs	–	☞ 1-11
	Bypass Transport Roller/roll	When a malfunction occurs	–	☞ 1-12
IR Section	Mirrors/Lens	When a malfunction occurs	–	☞ 1-13
	Scanner Rails/Bushing	When a malfunction occurs	–	☞ 1-15
	Original Glass	80k	–	☞ 1-13
PH Section	PH Window	When a malfunction occurs	–	☞ 1-15
Imaging Unit Section	PC Drum	When a malfunction occurs	40k	☞ 1-16
	Cleaning Blade	–	40k	☞ 1-19
	PC Drum Charge Corona Assy	–	40k	☞ 1-19
	Developer (starter)	–	40k	☞ 1-20
	Ds Collar	40k	–	☞ 1-20
	Developer Scattering Prevention Plate	40k	–	☞ 1-20
	Pre-Image Transfer Guide Plate	40k	–	☞ 1-21
	PC Drum Paper Separator Finger	40k	–	☞ 1-19
Image Transfer Section	Ozone Filter	–	150k	☞ 1-18
	Image Transfer Roller Assy	–	150k	☞ 1-24
	Pre-Image Transfer Lower Guide Plate	When a malfunction occurs	–	☞ 1-24
	Charge Neutralizing Plate	When a malfunction occurs	–	☞ 1-24
Fusing Section	Fusing Unit	–	150k	☞ 1-25

NOTES

- The contents of the maintenance schedule are subject to change without notice.
- For part numbers, see Parts Manual and Parts Modification Notice.
- Both for the copier and options, check the PM counter values for performing the service procedures.

ES 2-22

5.2 Guidelines for Life-time Expected Values by Unit

	Description	Life Value	New Copy/Print Cycle Inhibited
PC Drum	The distance traveled by the PC Drum is converted to a corresponding number of printed pages of A4 crosswise paper at 2P/J.	40K	Not inhibited *1
Cleaning Blade		40K	
PC Drum Charge Corona		40K	
Developer		40K	
Image Transfer Assy	The number of sheets of paper fed out of the copier is counted.	150K	Not applicable
Paper Dust Remover Assy		40K	Not applicable
Fusing Unit		150K	Not applicable

K = 1,000 copies

* 1: The Service mode can be used to set either enable or disable the initiation of a new copy/print cycle.

NOTE

- The life value represents the number of copies made in the conditions specified in the table shown below, or a value translated to a corresponding number of copies made. It may therefore vary depending on the conditions, in which the copiers are used among different users.

<Life Value Conditions>

Copying type	2P/J
Paper size	A4Y
Original density	B/W 6%