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KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

bizhub

163/211/220

Main body

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2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Product 2007 Konica Minolta bizhub 163/211/220-FK-506-DF-605-MK-501,DF-502,
 improvement of their performance.
 Therefore, the descriptions given in this service manual may not coincide with the actual machine.

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2007/04	1.0	Issue of the first edition
Date	Service manual Ver.	Revisions mark
		Descriptions of revision

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bizhub 163/211/220 Main body

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bizhub 163/211/220

General

Maintenance

Adjustment / Setting

Troubleshooting

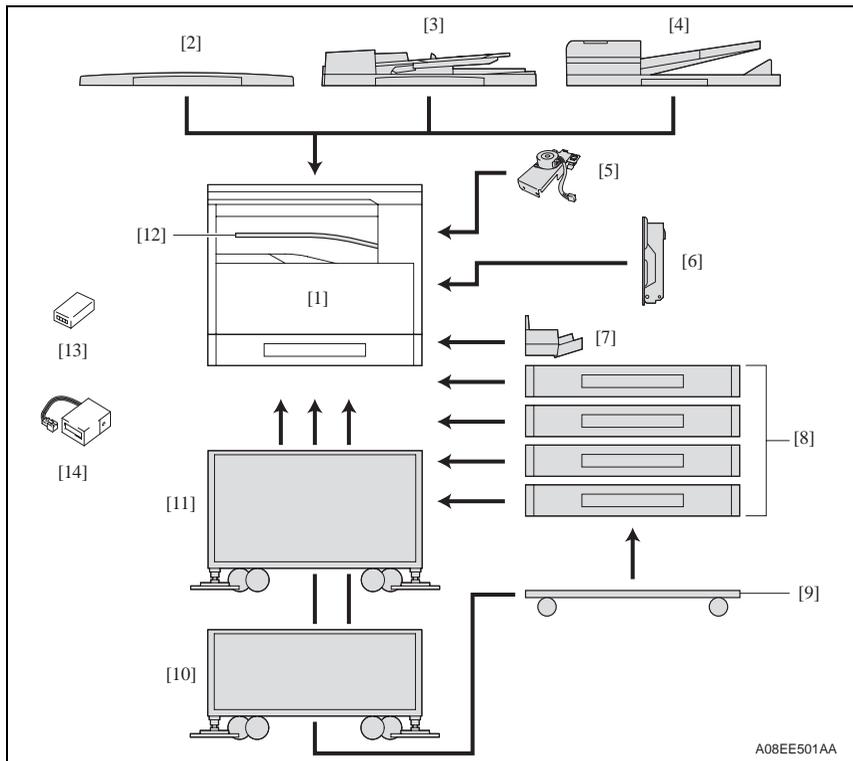
Appendix

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General

1. System configuration

1/2 System front view



- | | |
|---|---|
| [1] bizhub 163/211/220 *1 | [8] Paper feed unit (PF-502) |
| [2] Original cover (OC-504) *2 | [9] Desk (DK-703) |
| [3] Automatic document feeder (DF-502) | [10] Desk (DK-702) |
| [4] Reverse automatic document feeder (DF-605) *3 | [11] Desk (DK-701) |
| [5] Shift tray (SF-501) | [12] Job separator (JS-503) |
| [6] Automatic duplex unit (AD-504) *3 *5 | [13] Key counter mount kit 1 (previous models for minolta.)
Key counter mount kit 2 (previous models for konica) |
| [7] Multi bypass tray (MB-501) *4 | [14] Mechanical counter (MC-503) |

*1: The standard bizhub 220 configuration is the main body plus 1-drawer paper feed unit.

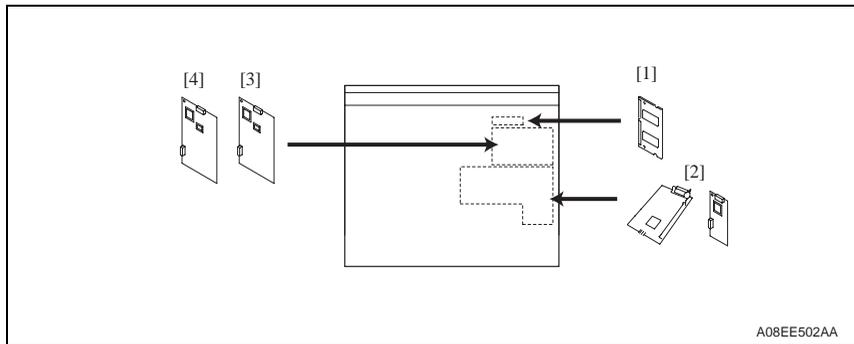
*2: Standard only on the bizhub 163 and bizhub 211/220 for china

*3: To be mountable only on bizhub 211/220

*4: Standard only the main body for china (but separately packaged upon shipment from factory)

*5: Standard only on bizhub 220 (but separately packaged upon shipment from factory)

2/2 System rear view



[1] Expanded memory unit (EM-103)

[3] Image controller (IC-206) *

[2] Fax kit (FK-506)

[4] Network interface card (NC-503) *

* It is not possible to mount these units at the same time.

2. Product specification

A. Copier

Type	Console/desktop type
Platen	Stationary
Original scanning system	CCD line sensor
Photoconductor	Organic photoconductor
Copying system	Electrostatic dry powdered image transfer to plain paper with a laser
Resolution	600 x 600 dpi
Paper feeding system	Max. six-way system
Exposure system	Mirror scanning
Developing system	HMT system
Charging system	Comb electrode DC negative corona with scorotron system
Image transfer system	Roller image transfer
Paper separating system	Paper separator fingers and charge neutralizing plate
Fusing system	Heat roller
Paper discharging system	Charge neutralizing brush

B. Functions

Types of original	Sheets, books, and three-dimensional objects	
Max. original size	A3 or 11 x 17	
Multiple copies	1 to 99	
Warming-up time	15 sec. or less: bizhub 211/bizhub 220 30 sec. or less: bizhub 163 (when the auxiliary power switch is turned ON from a stabilized state, in which the main power switch is ON and auxiliary power switch is OFF, with the rated power source voltage and at a room temperature of 23°C)	
Image loss	Leading edge: 4 mm (1/4 inch), trailing edge: 4 mm (1/4 inch), Rear edge: 4 mm (1/4 inch), front edge: 4 mm (1/4 inch)	
First copy time (A4, full size)	Scan through glass: 7 sec. or less ADF scan: 11 sec. or less (Values in conditions of paper fed from tray 1 at a room temperature of 23°C and with a rated power source)	
Processing speed	93 mm/s	
Copying speed for multi-copy cycle (A4, 8-1/2 x 11)	21 cpm or more (bizhub 211: metric areas)	
	22 cpm or more (bizhub 220)	
	20 cpm or more (bizhub 211: inch areas)	
	16 cpm or more (bizhub 163)	
Fixed zoom ratios (Europe, china)	Full size	x 1.00
	Reduction	x 0.250, x 0.500, x 0.700, x 0.810
	Enlargement	x 1.150, x 1.410, x 2.000, x 4.000
Fixed zoom ratios (Latin america areas for inch)	Full size	x 1.00
	Reduction	x 0.250, x 0.500, x 0.640, x 0.780
	Enlargement	x 1.210, x 1.290, x 2.000, x 4.000

Fixed zoom ratios (Latin america area for metric)	Full size	x 1.00
	Reduction	x 0.250, x 0.500, x 0.700, x 0.780
	Enlargement	x 1.150, x 1.410, x 2.000, x 4.000
Variable zoom ratios	×0.250 to ×4.000	in 0.001 increments
Paper size used	Tray 1	A3 to A5S, Letter, LedgerS, 11 x 14, LegalS, Invoice, 8K, 16K, FLS
	Manual bypass	
Paper capacity (Tray 1)	Plain paper/recycled paper	250 sheets
	Special paper (thick paper, overhead projector transparencies, postcards, label sheets)	20 sheets
	Envelopes	10 sheets
Paper capacity (Manual bypass)	Plain paper/recycled paper/special paper	1 sheets

C. Paper

		Tray1	Paper feed unit	Manual bypass
Type	Plain paper (60 to 90 g/m ²)	○ (250 sheets)		○ *1
	Transparencies	○ (20 sheets)		○ *1
	Thick Paper (91 to 157 g/m ²)	○ (20 sheets)		○ *1
	Postcards	○ (20 sheets)		○ *1
	Labels	○ (20 sheets)		○ *1
	Envelopes	○ (10 sheets)		○ *1
Size	Width	90 to 297 mm *2	182 to 297 mm *2	90 to 297 mm *2
	Length	140 to 432 mm *2		

*1: Capacity of manual bypass: 1 sheet

*2: If the width set 297 mm, the max. length is to 420 mm.

If the length set 432 mm, the max. width is to 279 mm.

D. Maintenance

Machine durability	300,000 prints or 5 years, whichever is earlier (bizhub 211/bizhub 220) 240,000 prints or 5 years, whichever is earlier (bizhub 163)
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E. Machine specifications

Power requirements	Voltage	AC100 V, AC120V, AC220-240V	
	Frequency	50/60 Hz	
Max power consumption	bizhub 163	100/110/120 area	1000 W \pm 10% or less
		127/230 area	1050 W \pm 10% or less
		220 area	940 W \pm 10% or less
		240 area	1100 W \pm 10% or less
	bizhub 211/220	110/120/220 area	1200 W \pm 10% or less
		127/240 area	1350 W \pm 10% or less
230 area		1250 W \pm 10% or less	
Dimensions	599 (W) x 620 (D) x 520 (H) mm *1		
	760 (W) x 620 (D) x 604 (H) mm *2 (bizhub 220 for China)		
	760 (W) x 620 (D) x 520 (H) mm *2 (bizhub 163 for China)		
Space requirements	998 (W) x 665 (D) mm (bizhub 211/220)		
	998 (W) x 620 (D) mm (bizhub 161)		
Mass	89 kg (when fully equipped)		

*1: Including the original cover

*2: Including MB-501 and original cover

F. Operating environment

Temperature	10 to 30°C (with a fluctuation of 10°C or less per hour)
Humidity	15 to 85% (with a fluctuation of 10%/h)

G. Built-in controllers

Printing Speed	bizhub 211: 21 printed pages/min (A4, 300 dpi) 12 printed pages/min (A4, 600 dpi)
	bizhub 163: 16 printed pages/min (A4, 300 dpi) 12 printed pages/min (A4, 600 dpi)
Memory	Shared with the copier
Interface	USB revision 2.0 compatible
Printer language	GDI
Font	Windows
Complying OS	Windows XP (SP2 or later), Windows 2000 (SP4 or later), Windows ME, Windows 98 SE

2.1 Fax kit (FK-506): (Option)

Transmission mode	G3
Compatible wiring	General subscriber telephone line, NCC each line
Connection method	Direct connection (using a modular jack)
Transmission speed	33.6, 31.2, 28.8, 26.4, 24.0, 21.6, 19.2, 16.8, 14.4, 12.0, 9.6, 7.2, 4.8, 2.4 kbps (automatic switching)
Transmission time	3 seconds *1
Scanning density	8 dots/mm x 3.85/7.7/15.4 lines/mm, 16 dots/mm x 15.4 lines/mm *2
Document size	Maximum A3 (Ledger), banner documents (maximum 1000 mm (39-1/4 inches)) possible
Print paper size	Metric: A3, B4, A4, B5, A5 Inch: Invoice (8-1/2 x 5-1/2), Letter, Legal (8-1/2 x 14), Ledger (11 x 17)
Scanning storage	With built in memory (5 MB): 280 pages With expanded memory (64 MB): 1,024 pages *With standard A4-size documents
Compression encoding format	MH / MR / MMR / JBIG

*1: This is the speed for transmitting an A4-size, or Letter-size document containing approximately 700 characters at high-speed (33.6 kbps) using the standard resolution (8 dots/mm x 3.85 lines/mm (200 dpi x 100 lpi)). The transmission time for only the image information and the communication control time are not included. In addition, the actual transmission time differs depending on the contents of the document, the recipient's fax machine and the condition of the wiring.

*2: Real-time transmission is supported only with the document feeder.

Maintenance

3. Periodical check

3.1 Service schedule

3.1.1 Main body (bizhub 163) /PF-502/MB-501

Guarantee period : 5-year or 240,000 prints

	Service item	x 10,000-print						No. of times
		4	8	12	15	16	20	
Main body	40,000	●	●	●		●	●	5
	80,000		●			●		2
	150,000				●			1
PF-502	150,000				●			1
MB-501	150,000				●			1

3.1.2 Main body (bizhub 211/220) /PF-502/MB-501

Guarantee period : 5-year or 300,000 prints

	Service item	x 10,000-print						No. of times		
		4	8	12	15	16	20		24	28
Main body	40,000	●	●	●		●	●	●	●	7
	80,000		●			●		●		3
	150,000				●					1
PF-502	150,000				●					1
MB-501	150,000				●					1

3.1.3 DF-502

Guarantee period: 5-year or 150,000 originals feed

Service item	x 10,000-originals feed				No. of times
	3	6	9	12	
30,000	●	●	●	●	4
120,000				●	1

3.1.4 DF-605

Guarantee period: 5-year or 1000,000 originals feed

Service item	x 10,000-originals feed																No. of times				
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80		85	90	95	
50,000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	19
200,000				●				●				●				●					4

3.2 Maintenance items

3.2.1 Parts to be replaced by users (CRU)

No	Class	Parts to be replaced	Cycle	Clean	Replace	Descriptions
1	Processing sections	Toner bottle	11,000		●	

3.2.2 Periodical parts replacement/cleaning 1 (per 30,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descriptions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-502	Pick-up roller	—		●			
4		Paper take-up roller	—		●			
5		Separation roller	—		●			
6		Registration roller	—		●			
7		Registration roll	—		●			
8		Exit roller	—		●			
9		Exit roll	—		●			
10		Transport roll	—		●			
11		Length sensor/2 (PS7)	—		●			

3.2.3 Periodical parts replacement/cleaning 2 (per 40,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descriptions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Processing sections	Ds collars	—		●			
4		Developer scattering prevention plate	—		●			
5		Pre-image transfer guide plate	—		●			
6		PC drum paper separator fingers	—		●			
7		PC drum	1			●		
8		PC drum charge corona assy	1			●		
9		Cleaning blade	1			●		
10		Developer	1			●		
11		Toner agitating seal	1			●		
12		Cleaning pad assy	1			●		

3.2.4 Periodical parts replacement/cleaning 3 (per 50,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descrip- tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-605	Pick-up roller	—		●			
4		Paper take-up roller	—		●			
5		Separation roller	—		●			
6		Rollers and rolls	—		●			
7		Scanning guide	—		●			
8		Reflective sensor section	—			●		

3.2.5 Periodical parts replacement/cleaning 4 (per 80,000-print)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descrip- tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Scanner section	Original glass/original scanning glass	—		●			

3.2.6 Periodical parts replacement/cleaning 5 (per 120,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descrip- tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-502	Pick-up roller	1			●		*1
4		Feed roller	1			●		
5		Separation roller	1			●		

*1: Replace those three parts at the same time.

3.2.7 Periodical parts replacement/cleaning 6 (per 150,000-print)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descrip- tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Tray 1	Feed roller	1			●		*1
4		Separation roller assy	1			●		
5	Image transfer section	Image transfer roller assy	1			●		
6	Fusing section	Fusing unit	1			●		
7	Processing sections	Ozone filter	1			●		
8	PF-502	Feed roller	2			●		
9	MB-501	Feed roller	1			●		*1
10		Separation roller assy	1			●		

*1: Replace those two parts at the same time.

3.2.8 Periodical parts replacement/cleaning 7 (per 200,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri- cation	Descrip- tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-605	Pick-up roller	2			●		*1
4		Feed roller	1			●		
5		Separation roller	1			●		

*1: Replace those three parts at the same time.

3.3 Maintenance parts

- To ensure that the machine produces good copies and to extend its service life, it is recommended that the maintenance jobs described in this schedule be carried out as instructed.
- Replace with reference to the numeric values displayed on the life counter.

3.3.1 Replacement parts

A. Main body

No.	Classification	Parts name	Quantity	Actual durable cycle *1	Pats No.	Descriptions	Ref. page in this manual
1	Paper take-up section	Feed roller	1	150,000	4034 3012 ##	*2	P.17
2		Separation roller assy	1	150,000	4034 0151 ##		P.15
3	Transport section	Paper dust remover assy	1	40,000	4034 R703 ##		P.18
4	Imaging unit section	PC drum	1	40,000	—		P.22
5		Ozone filter	1	150,000	1156 4118 ##		P.23
6		PC drum charge corona assy	1	40,000	A08E R702 ##		P.24
7		Cleaning blade	1	40,000	4034 5622 ##		P.24
8		Developer	1	40,000	—		P.27
9		Toner agitating seal	1	40,000	A08E 3700 ##		P.27
10	Image transfer section	Image transfer roller assy	1	150,000	4034 R706 ##		P.30
11	Fusing section	Fusing unit	1	150,000	4035 0751 ## *3 4035 R700 ## *4 4035 R701 ## *5 A09A R700 ## *6		P.30

*1: Actual durable cycle is the life counter value.

*2: Replace those two parts at the same time.

*3: 110 V/120 V/127 V areas only.

*4: 220-240 V areas only.

*5: European areas only.

*6: Taiwan only.

B. Options

No.	Classification	Parts name	Quantity	Actual durable cycle *1	Pats No.	Descriptions	Ref.page in this manual
1	DF-502	Pick-up roller	1	120,000	4688 3032 ##	Replace those three parts at the same time.	*2
2		Feed roller	1	120,000	4688 3033 ##		
3		Separation roller	1	120,000	4688 3034 ##		
4	DF-605	Pick-up roller	2	200,000	4344 5003 ##	Replace those three parts at the same time.	*3
5		Feed roller	1	200,000	4582 3014 ##		
6		Separation roller	1	200,000	4582 3047 ##		
7	PF-502	Feed roller	2	150,000	4686 3371 ##		*4
8	MB-501	Paper take-up roller	1	150,000	4687 3012 ##	Replace those two parts at the same time.	*5
9		Separation roller assy	1	150,000	4034 0151 ##		

*1: Actual durable cycle is the life counter value.

*2: See the DF-502 Service Manual.

*3: See the DF-605 Service Manual.

*4: See the PF-502 Service Manual.

*5: See the MB-501 Service Manual.

3.3.2 Cleaning parts

No.	Classification	Parts name	Actual cleaning cycle *1	Descriptions	Ref.page in this manual
1	Imaging unit section	Ds collars	40,000		P.25
2		Developer scattering prevention plate	40,000		P.26
3		Pre-image transfer guide plate	40,000		P.29
4		PC drum paper separator fingers	40,000		P.25
5	Scanner section	Original glass/original scanning glass	80,000		P.15
6	DF-502	Pick-up roller	30,000		*2
7		Feed roller	30,000		
8		Separation roller	30,000		
9		Registration roller	30,000		
10		Registration roll	30,000		
11		Exit roller	30,000		
12		Exit roll	30,000		
13		Transport roll	30,000		
14	Length sensor/2 (PS7)	30,000			
15	DF-605	Pick-up roller	50,000		*3
16		Feed roller	50,000		
17		Separation roller	50,000		
18		Rollers and rolls	50,000		
19		Scanning guide	50,000		
20		Reflective sensor section	50,000		

*1: Actual cleaning cycle is the life counter value.

*2: See the DF-502 Service Manual.

*3: See the DF-605 Service Manual.

3.4 Concept of parts life

	Description	Life value (Specification value)	New copy/print cycle inhibited
PC drum	The distance travelled by the PC drum is converted to a corresponding number of printed pages of A4 paper at 2P/J.	40,000	Not inhibited *1
Cleaning blade		40,000	
PC drum charge corona		40,000	
Developer		40,000	
Image transfer assy	The number of sheets of paper fed out of the copier is counted.	150,000	Not applicable
Paper dust remover assy		40,000	Not applicable
Fusing unit		150,000	Not applicable

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

A. Conditions for life specifications values

- 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.

Item	Description	
Copying type	2P/J	
Paper size	A4	
CV/M	bizhub 163	Average 2,000/month, Max. 12,000/month
	bizhub 211/220	Average 3,000/month, Max. 16,000/month
Original density	B/W 6%	

3.5 Maintenance procedure (periodical check parts)

NOTE

- The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.

3.5.1 Cleaning of the original glass and original scanning glass

A. Periodically cleaning parts/cycle

- Original glass/original scanning glass: Every 80,000 prints

B. Procedure



1. Using a soft cloth dampened with alcohol, wipe the original glass [1] and original scanning glass [2] clean of dirt.

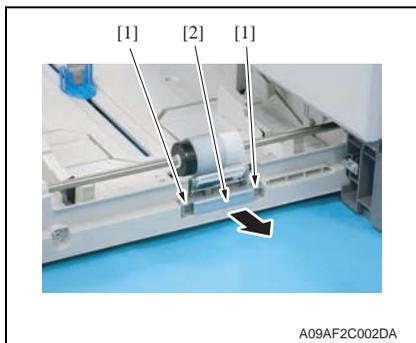
3.5.2 Replacing the separation roller assy

A. Periodically replaced parts/cycle

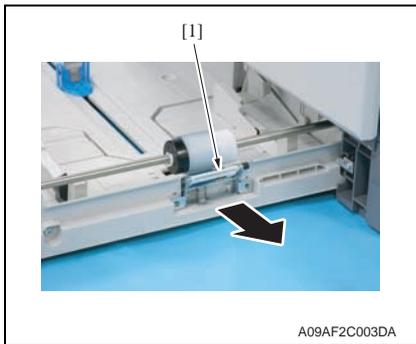
- Separation roller assy: Every 150,000 prints

B. Procedure

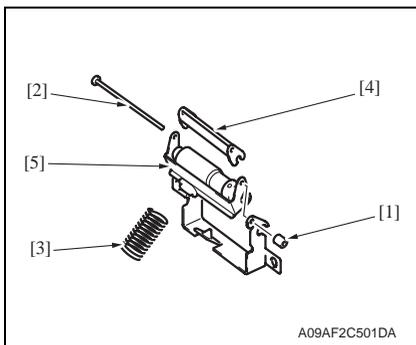
1. Slide out the tray/1.



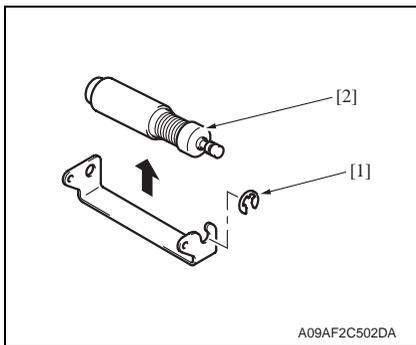
2. Remove two screws [1], and remove the mounting bracket [2].



- 3. Remove the separation roller fixing plate assy [1].



- 4. Take off the rubber stopper [1], shaft [2], spring [3], and guide plate [4] to remove the paper separation roller fixing bracket assy [5].



- 5. Snap off the E-ring [1], and remove the tray 1 paper separation roller assy [2].

- 6. To reinstall, reverse the order of removal.
- 7. Select [Service Mode] → [CLEAR DATA] → [PM COUNTER] and clear the counter value of [Tray 1].

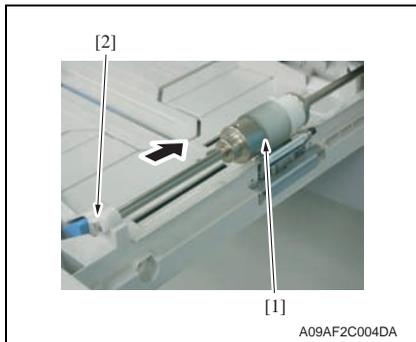
3.5.3 Replacing the feed roller

A. Periodically replaced parts/cycle

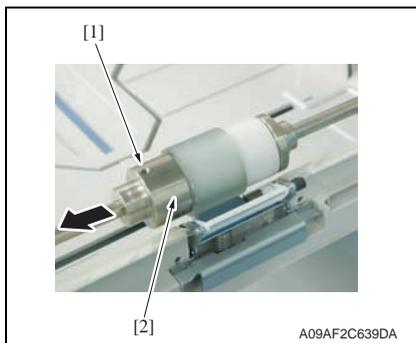
- Feed roller: Every 150,000 prints

B. Procedure

1. Slide out the tray/1.



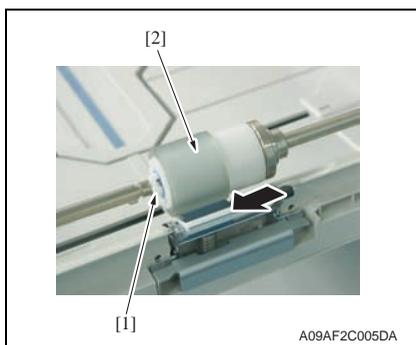
2. Press down the paper lifting plate.
3. Snap off the C-clip [2] from the feed roller assy [1].
4. Slide the feed roller assy [1] to the rear and pull it off the bearing at the front.



5. Loosen the set screw [1] with the hexagon wrench (2.5 mm), and remove the weight [2].

NOTE

- **When reinstall the weight, tighten the set screw with the weight slightly pushed against the feed roller.**



6. Snap off the C-clip [1], and remove the feed roller [2].

3.5.4 Replacing the paper dust remover assy

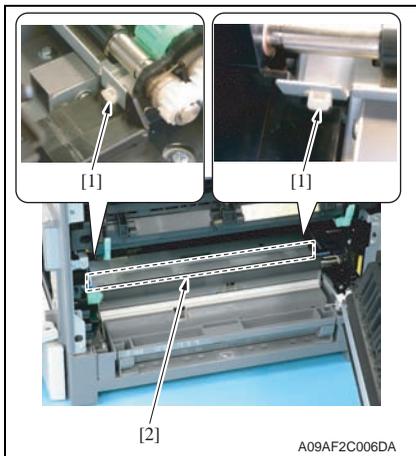
A. Periodically replaced parts/cycle

- Paper dust remover assy: Every 40,000 prints

B. Procedure

1. Open the right door.
2. Remove the imaging unit.

See P.20



3. Unhook the two tabs [1], and remove the paper dust remover assy [2].

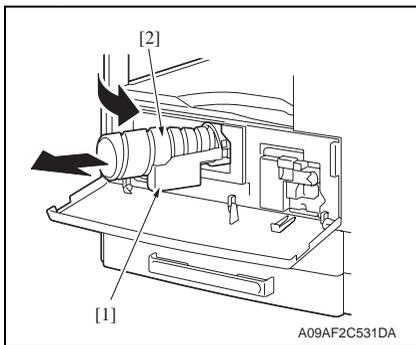
3.5.5 Replacing the toner bottle

A. Periodically replaced parts/cycle

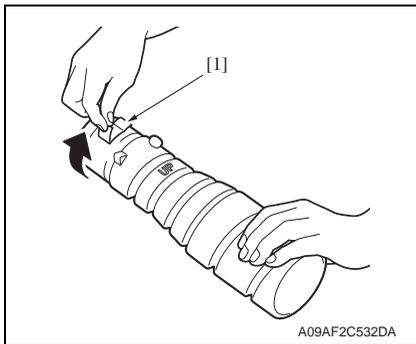
- Toner bottle: Every 11,000 prints

B. Procedure

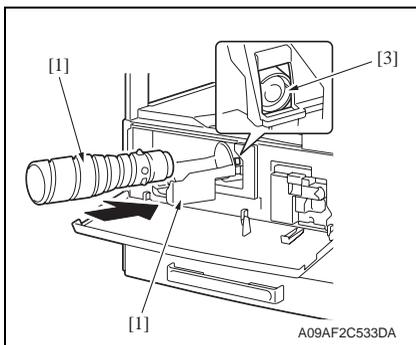
1. Open the front door.



2. Pull the toner bottle holder [1], and remove the toner bottle [2].



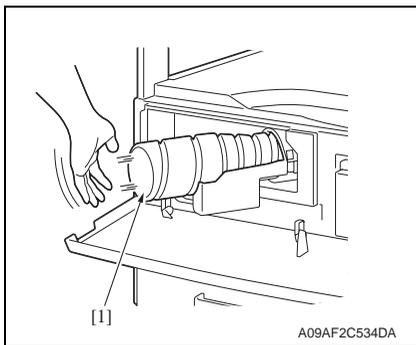
3. Turn up the sealing part [1] of the new toner bottle, and remove the seal toward slowly.



4. Turn up the part with "UP" display of the toner bottle [1], and put it into the toner bottle holder [2].

NOTE

- **Make sure that the convex part of the toner bottle is inserted into the concave part of the toner bottle holder [3].**



5. Tap the bottom of the toner bottle [1] 3 or 4 times.

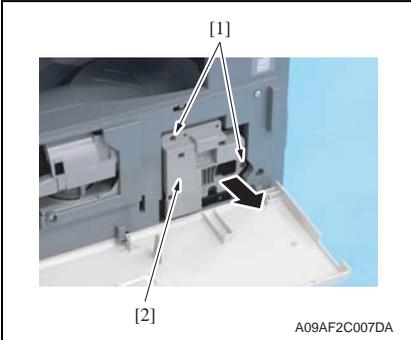
3.5.6 Replacing the imaging unit

A. Procedure

NOTE

- When the developer is to be changed, it is necessary that toner in the recycled toner recycling duct and toner conveying duct be fed into the developer mixing chamber. To do that, remove the toner bottle and run "ATDC AUTO ADJUST" twice. See P.138

- Open the front door.
- Open the right door.



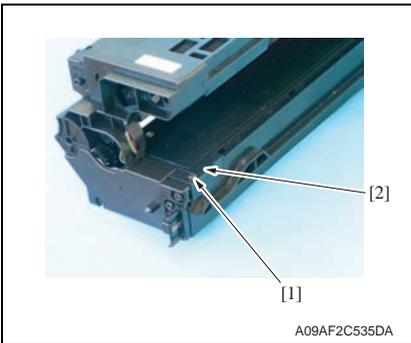
- Remove two screws [1], and remove the IU [2].

NOTE

- When installing the IU, use care not to damage the PC drum.
- Before attempting to install the IU, be sure to fully open the right door. Take care that, if the IU is installed with the right door locked halfway, it may interfere with the transfer roller.
- When inserting the IU, do that slowly and, when you are sure that the drum gear contacts the mating part, push the IU all the way into position. If this step is done all at once, the drum gear could be damaged.

3.5.7 Disassembly of the imaging unit

A. Procedure



- Remove the screw [1] in the rear of the IU and remove the harness cover [2].

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