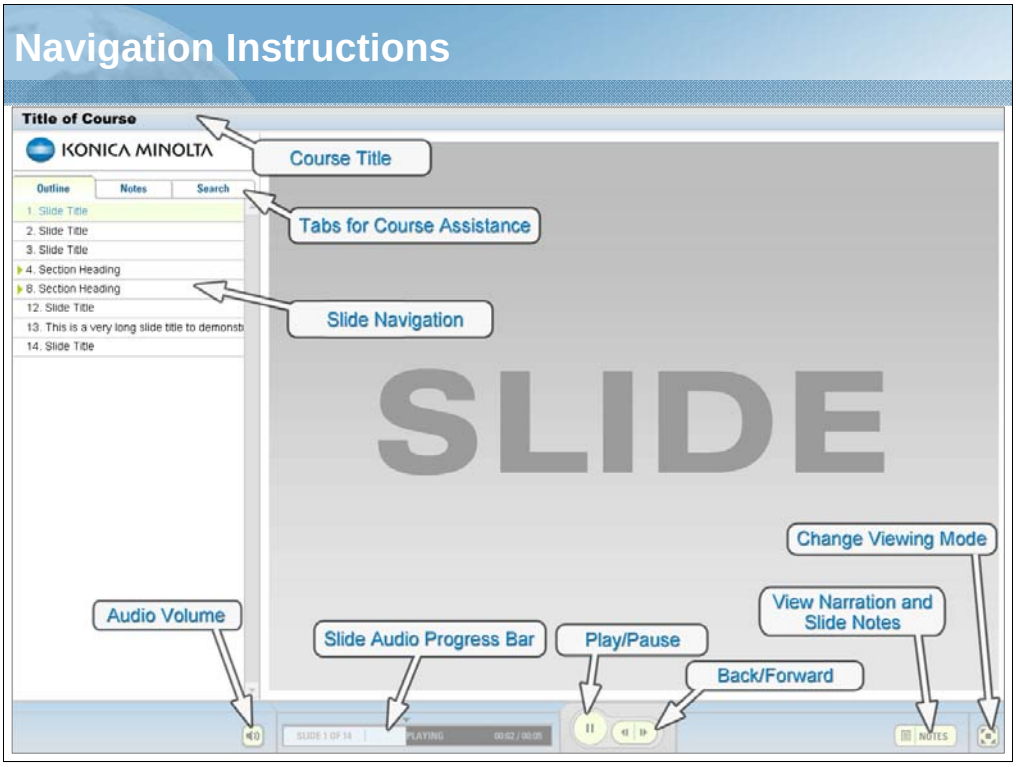
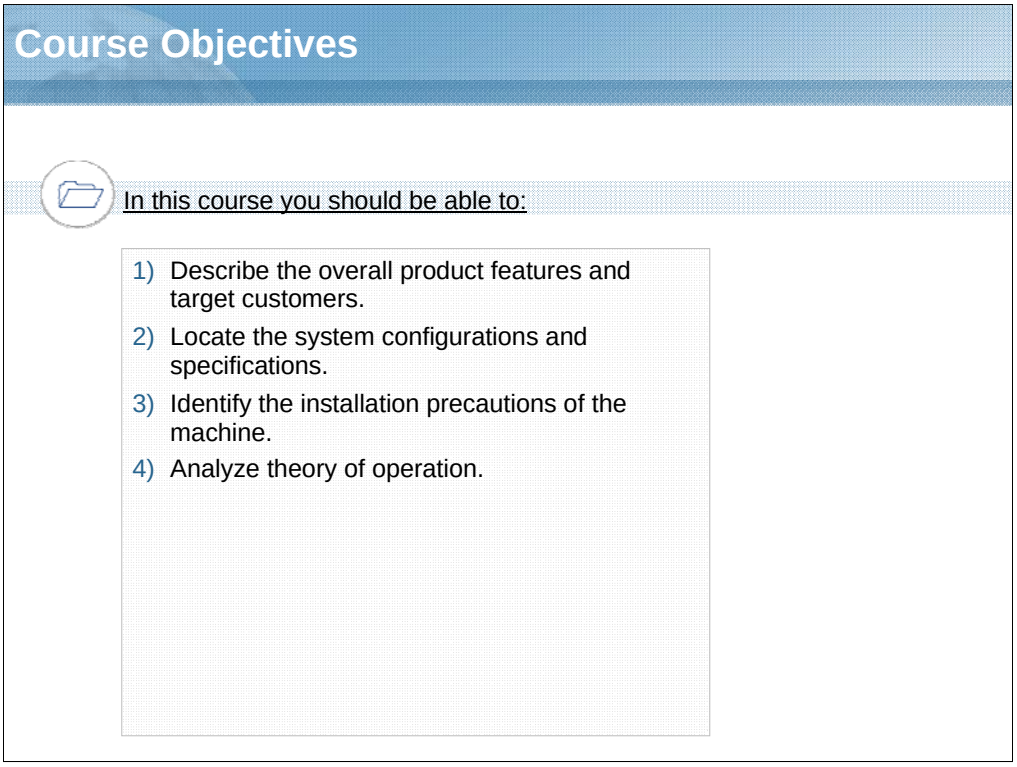
NARRATION: Welcome to Konica Minolta bizhub 184/164 Technical Training course.

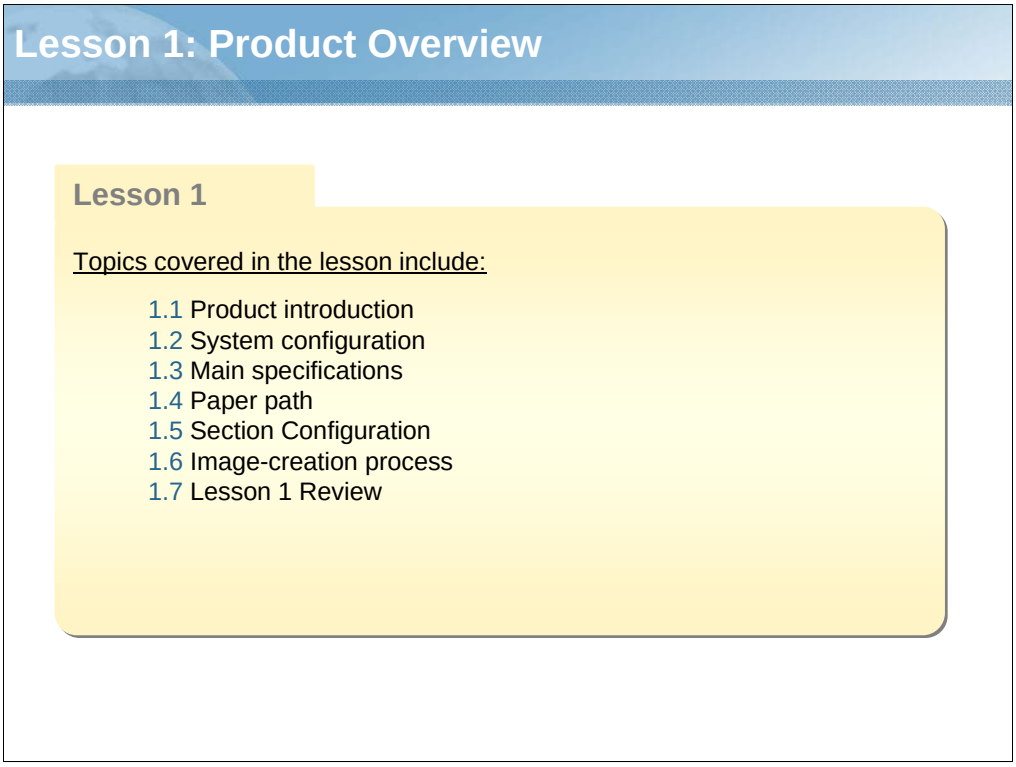
NOTE: Only the bizhub 164 is marketed in Europe, Taiwan, and Russia.



NARRATION: These are the navigation instructions.



NARRATION: In this course you should be able to: describe the overall product features and target customers, locate the system configurations and specifications, identify the installation precautions of the machine, and analyze the theory of operation.



NARRATION: This lesson explains the overview of the product.

1.1 Product introduction

❖ Product Concept

◆ A highly competitive, overwhelmingly cost-efficient, and profitable machine that can compete with other 16-to-18-cpm machines, particularly in one of the most price-competitive markets, such as China and NIEs countries, which have not been properly covered by bizhub 163.

◆ The lowest end machine in a lineup of 3in1 (copier, printer, and scanner) machines mounted with functions and performance that are minimally essential for small offices.

◆ Ensures the level of quality that complies with the market need of the NIEs.

◆ A simple machine that offers basic functions and easy-to-understand simple operability.

◆ A product that focuses heavily on cost by eliminating network and fax expandability and eliminating options and functions as much as permissible.

◆ Black-based design emphasizing strength of the KM brand.

◆ Superiority of genuine parts is stressed by the adoption of polymerized toner.

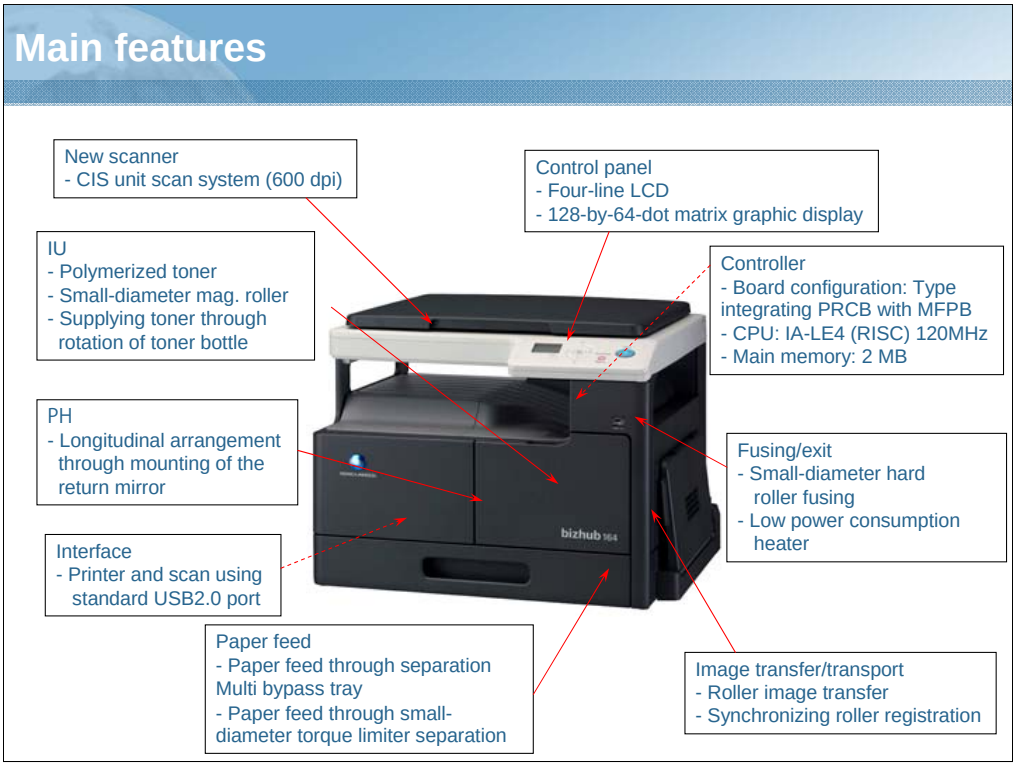
❖ Target users

Users: Medium-to-small-sized general offices of ROW region

Purpose of introduction: Replacement of cost-sensitive Seg. 1b monochrome machine users and new installation

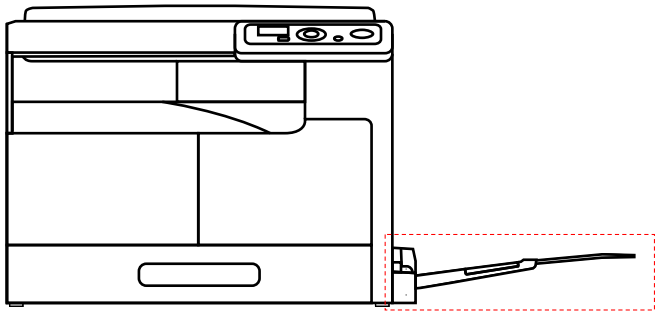
Style of use: Copying using minimal essential functions, GDI printing, and local TWAIN scanner

NARRATION: This is the product concept and target user of the product.



NARRATION: These are some of the main features of this model.

1.2 System configuration



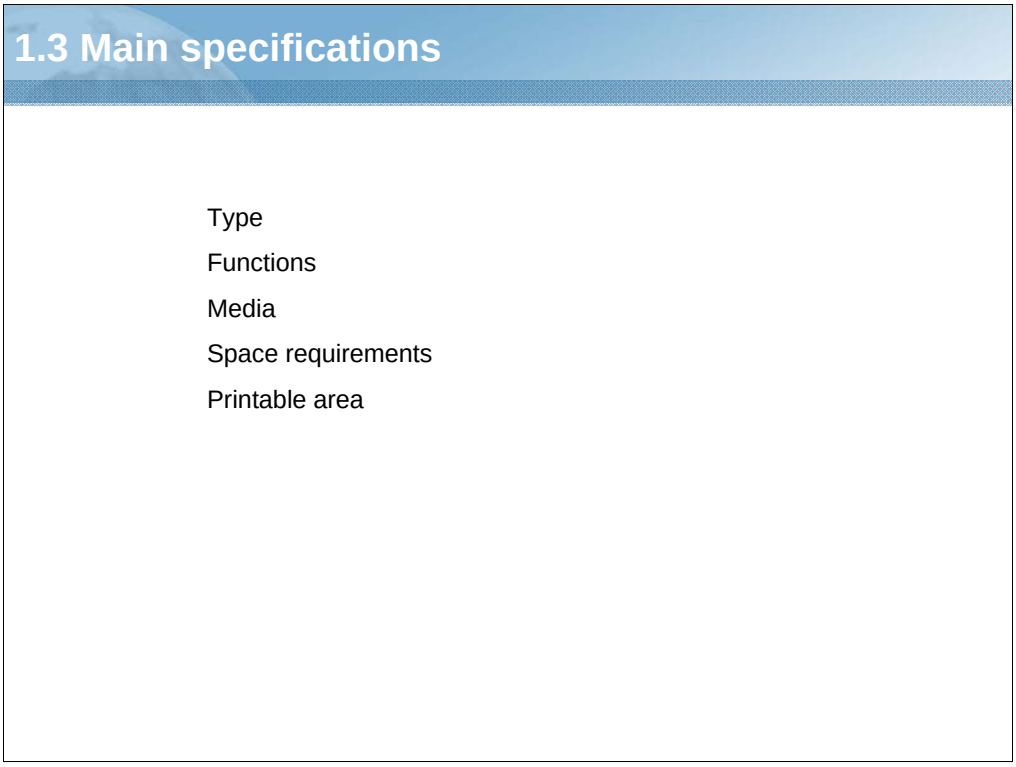
Multi Bypass Tray MB-503 *

*** Standard for China market only**

NARRATION: Only the multi bypass tray, MB-503, on which 100 sheets of plain paper can be loaded, is available as an option.

The multi bypass tray is, however, standard on machines for the Chinese market. The multi bypass trays are mounted on the machines at the factory before shipment.

The document feeder, duplex unit, and others are not set as options.



NARRATION: These product specifications for these categories will be covered.

Type

	Type
Type	Scanner/printer integrated desktop type
Scanning density	600 x 600 dpi
Platen	Stationary
Original scanning	CIS module optical scanning system
PC drum type	OPC drum
Paper feeding system	Tray 1: Separator pad system Multi bypass tray: Small roller separation system with torque limiter
Exposure system	LD exposing system/polygon mirror scan system
Developing system	Dry 2 components developing method, HMT developing system
Charging system	DC comb electrode scorotron system
Image transfer system	Roller image transfer system
Paper separating system	Combination of curvature, separating claws system
Fusing system	Roller fusing system

NARRATION: These product specifications for these categories will be covered.

Functions

	Function	
Warm-up time	220 - 240 V: 29 sec. or less 110 V/120 - 127 V: 30 sec. or less (when the power switch is turned ON from a stabilized state at ambient temperature of 23°C/73.4°F and rated source voltage)	
First copy time (A4, 8 1/2 x 11)	8 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	77mm/s	
Copying/printing speed for multi-copy cycle (A4, 8 1/2 x 11)	bizhub 184	18 sheets/min. (Plain paper), 7 sheets/min. (Card1/2)
	bizhub 164	16 sheets/min. (Plain paper), 7 sheets/min. (Card1/2)
Multiple copies	1 to 99	
zoom ratios	x 0.50 to x 2.00 (in 0.001 increments)	

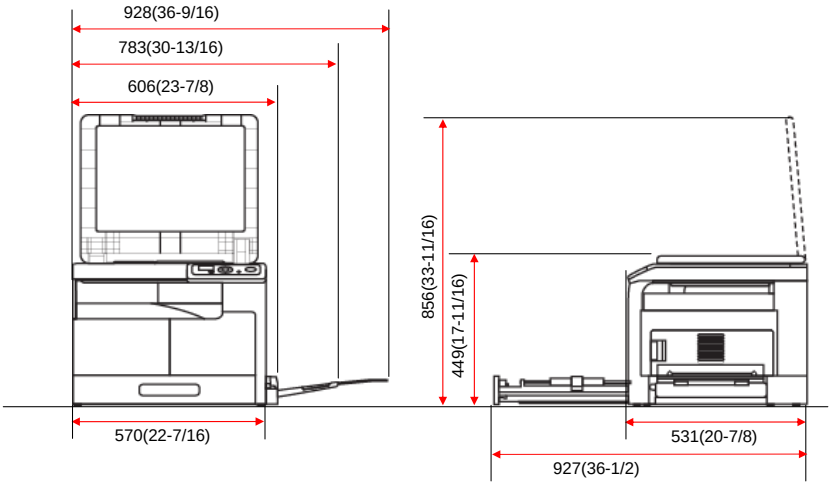
NARRATION: These product specifications for these categories will be covered.

Media

		Paper
Paper size used	Tray 1 / Multi bypass tray	A3 to A5S, Letter, LedgerS, 11 x 14, LegalS, Invoice, 8K, 16K, FLS Width: 90 to 297 mm / 3 9/16 to 11 11/16 inch Length: 139.7 to 431.8 mm / 5 1/2 to 17 inch
Media type/ Input capacity	Tray1	Plain paper (64 to 90 g/m2 / 17 to 24 lb): 250 sheets Card 1 (91 to 120 g/m2 / 24.25 to 31.75 lb): 20 sheets Card 2 (121 to 157 g/m2 / 32.25 to 41.75 lb): 20 sheets
	Multi bypass tray	Plain paper (64 to 90 g/m2 / 17 to 24 lb): 100 sheets Card 1 (91 to 120 g/m2 / 24.25 to 31.75 lb): 20 sheets Card 2 (121 to 157 g/m2 / 32.25 to 41.75 lb): 20 sheets
Output capacity		250 sheets

NARRATION: Here are the media specifications.

Space requirements



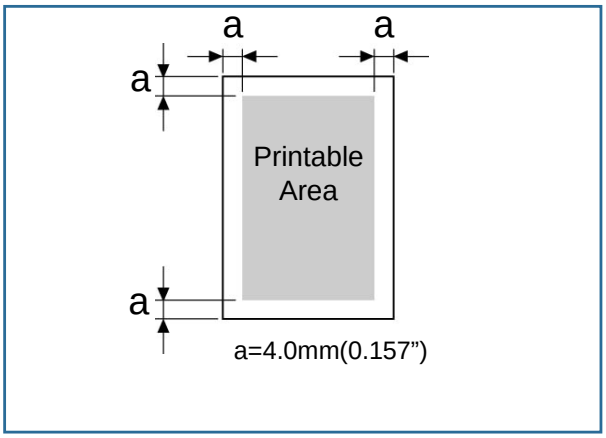
<Front View> **<Side View with Options>**

NARRATION: To ensure that machine operation, consumables replacement, and regular maintenance can easily be performed,

adhere to the recommended space requirements.

Printable area

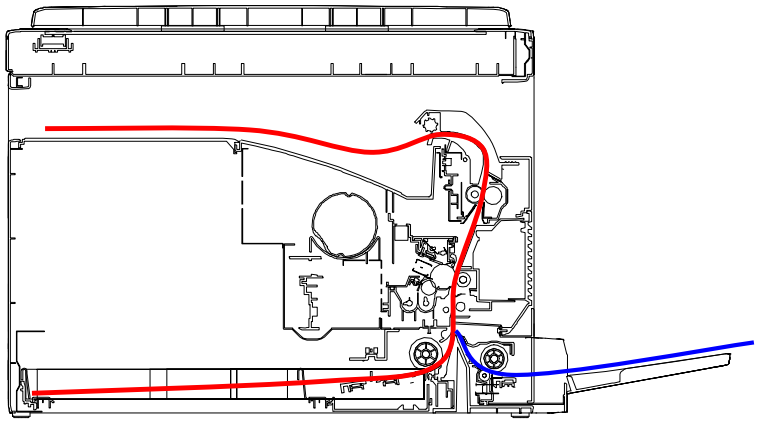
Each media size has a specific imageable area, the maximum area on which the printer can print clearly and without distortion.



NARRATION: The shaded area represents the printable area. The non-shaded area shows the area that cannot be printed on.

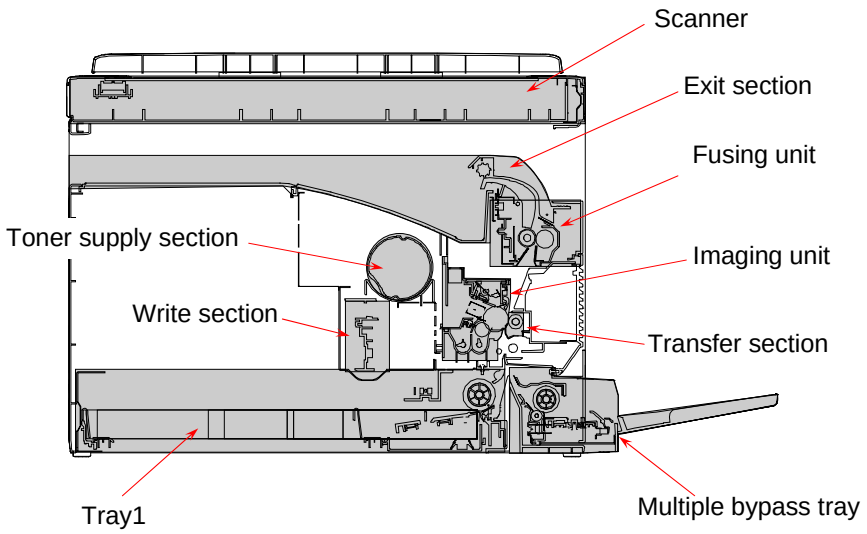
1.4 Paper path

Animation

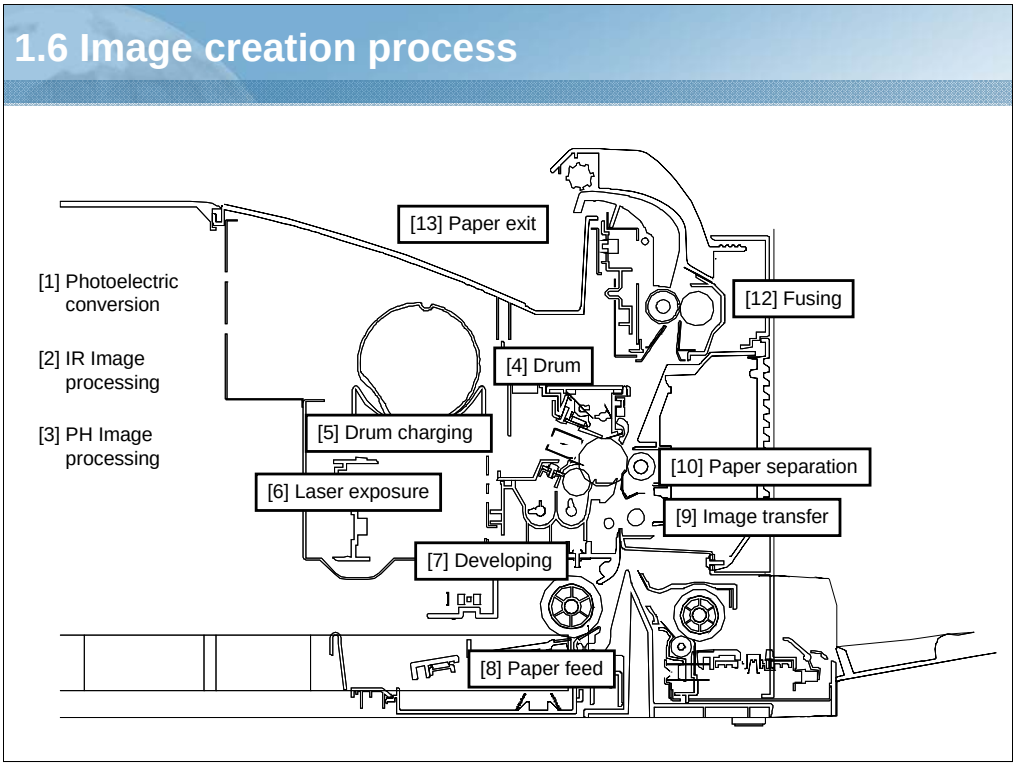


NARRATION: The paper path is shown in the illustration on this slide. The paper that is taken up from the tray is conveyed upward through the vertical transport section. After passing through the image transfer and fusing process, the paper is fed out face down into the exit tray.

1.5 Section configuration



NARRATION: This slide shows the section configurations.



NARRATION: This illustration shows the image creation process.

Note:

[1] Photoelectric conversion: A CIS sensor is used to convert the image data represented by light reflected off the original to a corresponding electric signal which, in turn, is output to the ir image processing section.

[2] IR Image processing: The analog electric signal is converted to an 8-bit digital image signal (A/D conversion) which, in turn, goes through appropriate corrections before being output to the PH image processing section.

[3] PH Image processing: After going through corrections, the digital image signal is converted to a corresponding electric signal (D/A conversion), with which the laser is turned ON or OFF as necessary.

[4] Drum: Made up of an aluminum pipe coated with a photoconductive layer, on which an electrostatic latent image is formed.

[5] Drum charging: A uniform negative DC charge is deposited across the entire surface of the drum.

[6] Laser exposure: The laser beam strikes the surface of the drum, forming an electrostatic latent image.

[7] Developing: Toner negatively charged in the developer mixing chamber is attracted onto the electrostatic latent image changing it to a visible, developed image. A developing bias (Vb) is applied to the developing roller to prevent toner from being attracted onto those areas of the drum which correspond to the background areas of the original.

[8] Paper feed: Paper is supplied from the paper feed tray.

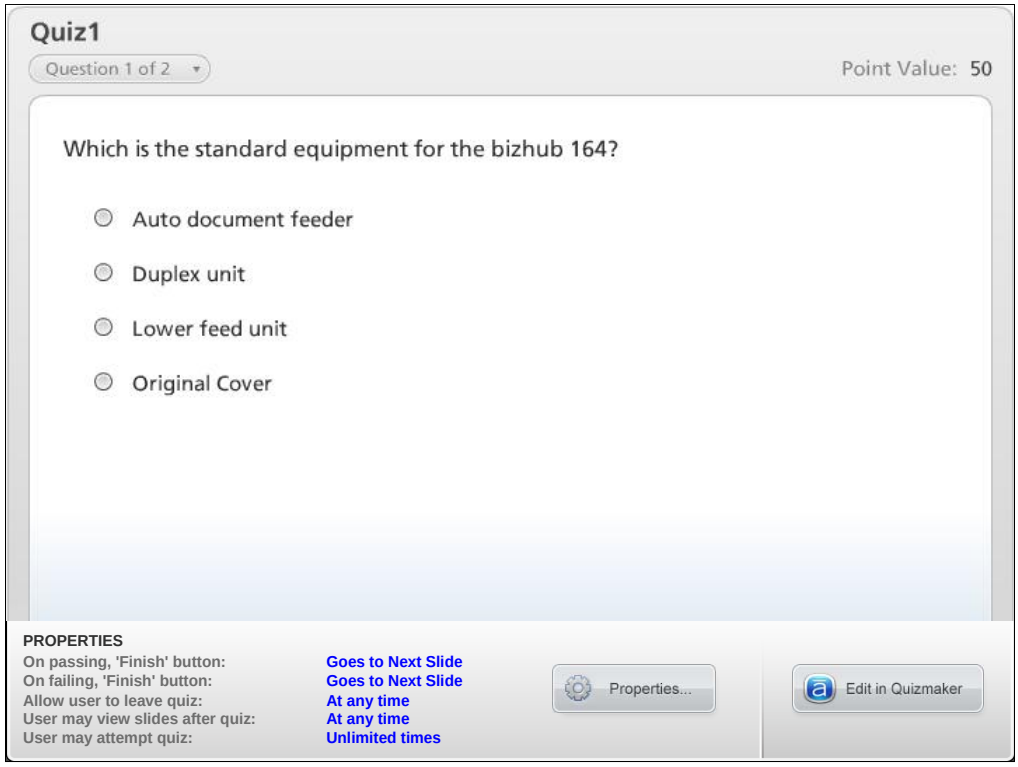
[9] Image transfer: A DC positive charge is applied to the image transfer roller to transfer the visible image on the surface of the drum onto the paper.

[10] Paper separation: The drum paper separator fingers remove paper from the surface of the drum.
The charge neutralizing plate neutralizes any charge left on the paper.

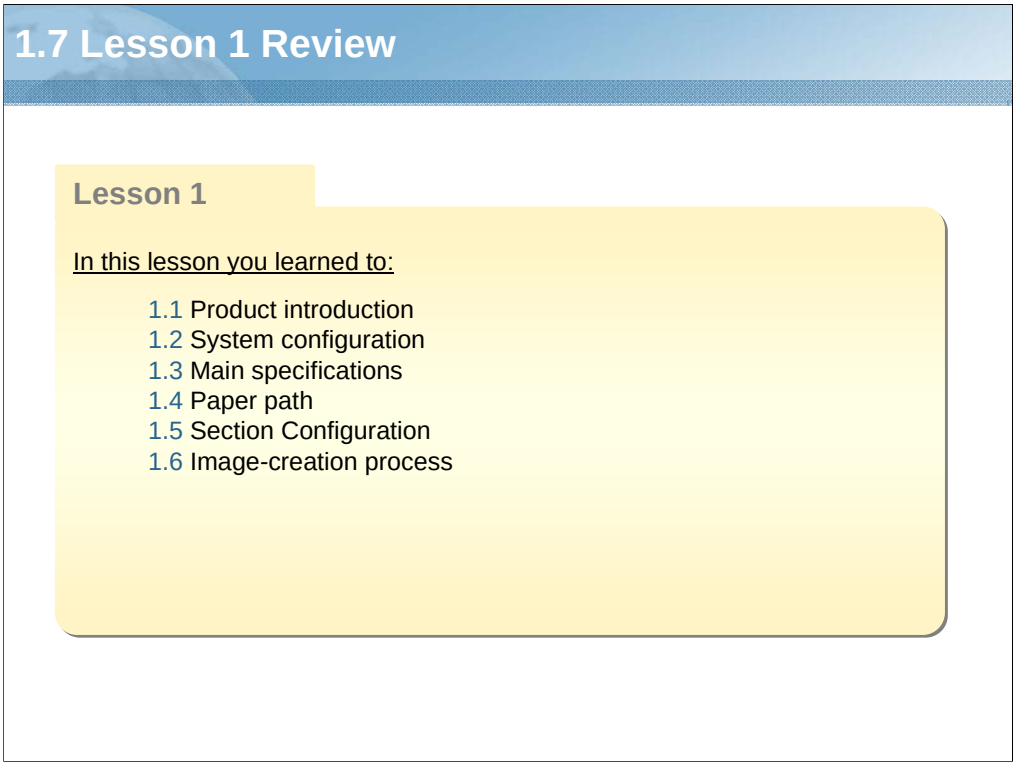
[11] Cleaning: Residual toner on the surface of the drum is scraped off. The toner is then recycled back to the developing unit.

[12] Fusing: The developed image is permanently fused to the paper by the combination of heat and pressure applied by the fusing roller.

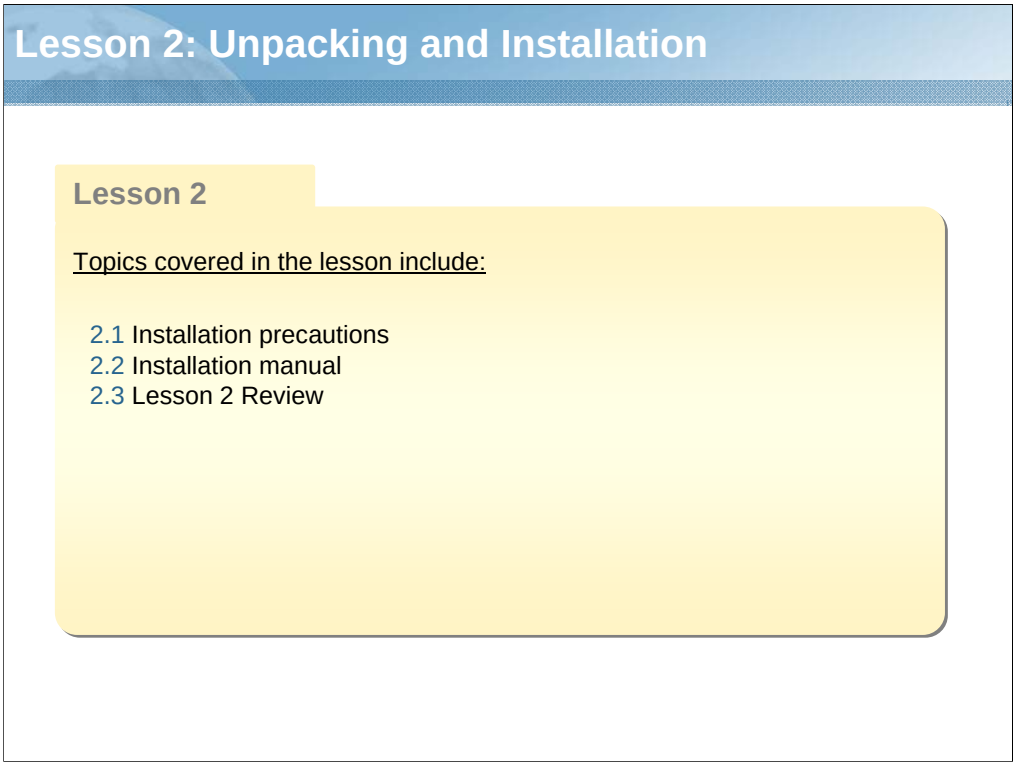
[13] Paper exit: The paper is fed out onto the exit tray.



NARRATION: This is the review quiz for this lesson.



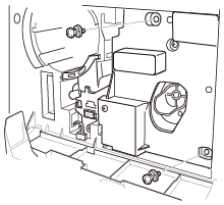
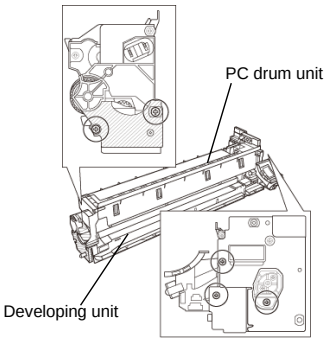
NARRATION: In this lesson, you learned the following items.



NARRATION: This lesson explains Unpacking and Installation.

2.1 Installation precautions (Main body 1/3)

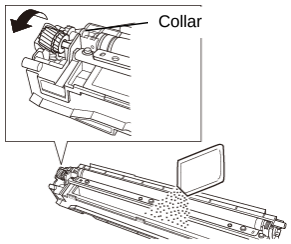
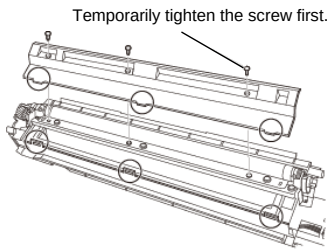
❖ Main Body

E-3	▪ When removing the imaging unit, use care not to touch or scratch the PC drum. ▪ Cover the imaging unit, which has been removed, with a protective cloth or similar material.	
E-4	▪ When separating the PC drum unit from the developing unit, do not open wide the lower portion (shaded area) of the PC drum unit to prevent PC drum parts from dropping.	

NARRATION: When removing the imaging unit, handle the PC drum with utmost care. When separating the PC drum unit from the developing unit, use care not to open wide the lower portion of the PC drum unit to prevent PC drum parts from dropping.

2.1 Installation precautions (Main body 2/3)

❖ Main Body

E-4	▪ When pouring the starter, do not turn the gear backward. ▪ Be sure not to let the starter get inside the collar.	
	▪ Do not tilt the developing unit or imaging unit after the starter is poured.	

NARRATION:

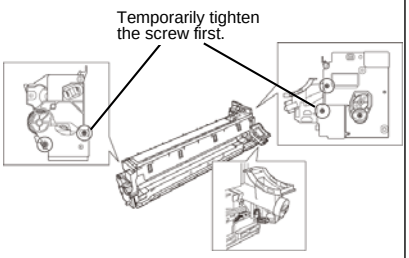
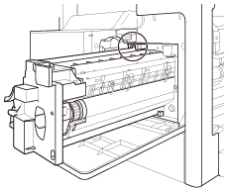
▪Pour the starter evenly while turning the gear in the direction of the arrow. At this time, do not turn the gear backward.

▪Use care to ensure that none of the starter gets inside the collar.

▪Do not tilt the developing unit or imaging unit after the starter is poured.

2.1 Installation precautions (Main body 3/3)

❖ Main Body

E-5	▪ When assembling the PC drum unit with the developing unit, do not open wide the lower portion of the PC drum unit to prevent PC drum parts from dropping. ▪ Before securing the parts together, clean the mounting screw groove of the PC drum unit.	
	▪ Keep the right door open when mounting the imaging unit on the machine. ▪ Align the shaft of the imaging unit with the guide of the printer.	
E-6	▪ Shake the toner bottle well, because toner in the toner bottle may be caked.	

NARRATION:

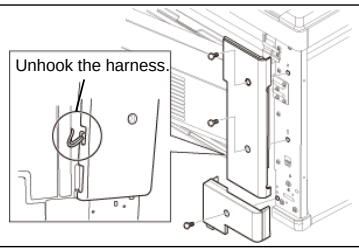
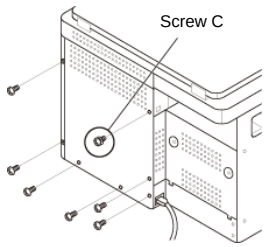
▪When assembling the PC drum unit with the developing unit, use care not to open wide the lower portion of the PC drum unit to prevent PC drum parts from dropping.

▪Keep the right door open when mounting the imaging unit on the machine.

▪When loading the toner bottle in the machine, shake the toner bottle well.

2.1 Installation precautions (Option)

❖ MB-503

E-1	▪ When removing the upper cover, unhook the harness from the cover hook.	
E-3	▪ When mounting the rear cover, note that only the screw marked with Screw C is different from the others.	
	▪ Select “(BYPASS)” for the paper tray to be adjusted.	

* Standard for China

NARRATION:

▪When removing the upper cover, be careful about the harness of the cover hook.

▪When mounting the rear cover, note that only the screw marked with Screw C is different from the others.

▪When making the adjustment, select BYPASS. BYPASS corresponds to the multi bypass tray.

2.2 Installation manual

❖ **Main Body**

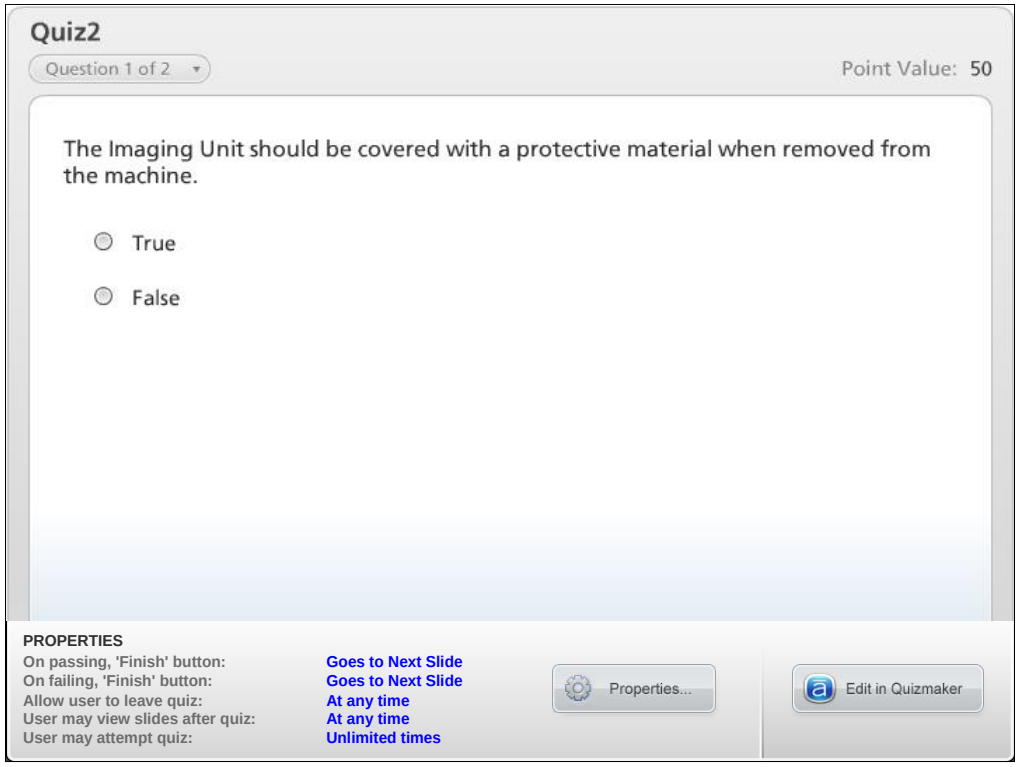
bizhub 184/164

❖ **Option**

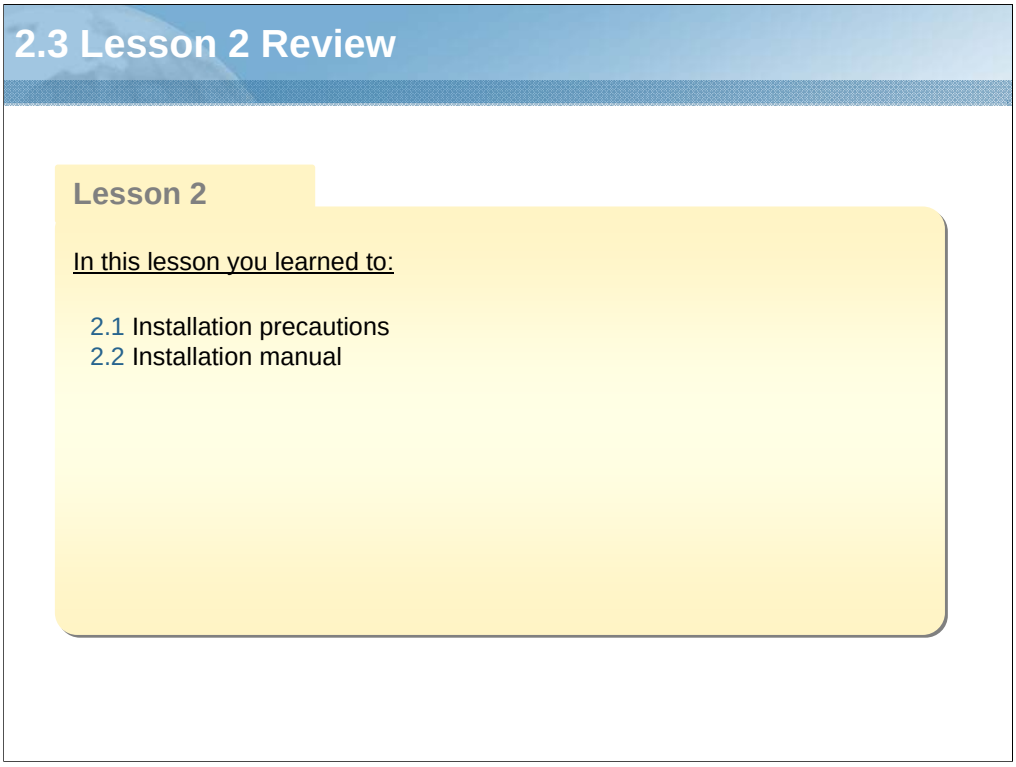
MB-503

* Standard for China

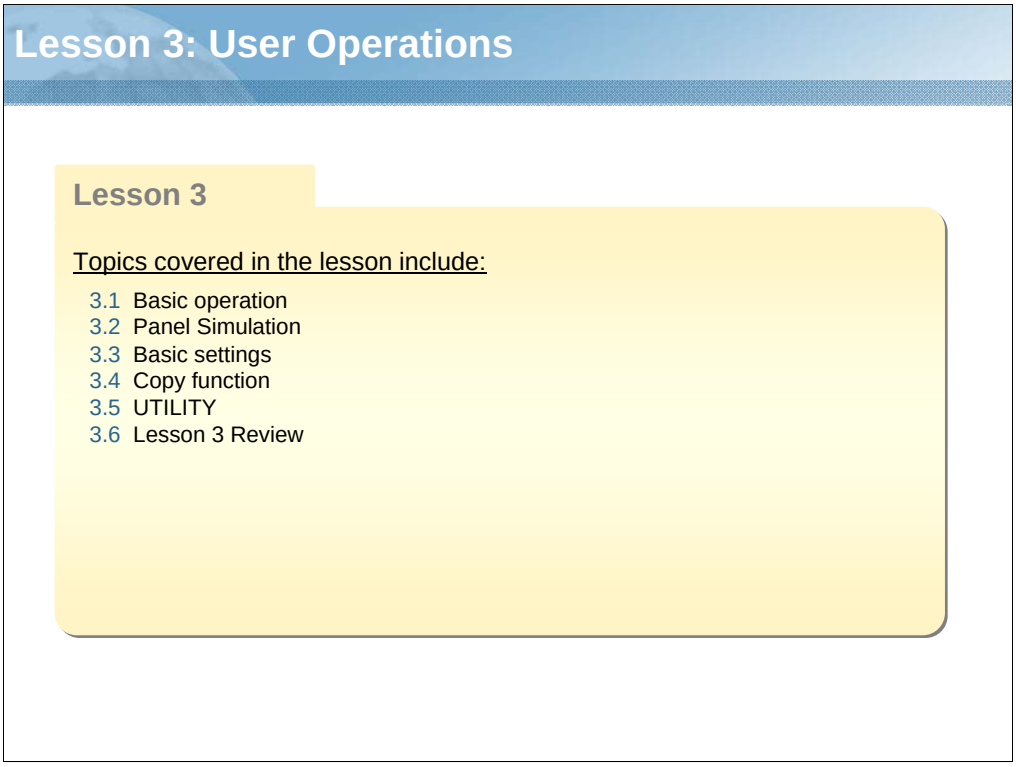
NARRATION: The installation manuals for the main body and option are provided here in PDF format. Click on either link to display the corresponding Installation manual.



NARRATION: This is the review quiz for this lesson.



NARRATION: In this lesson, you learned the following items.

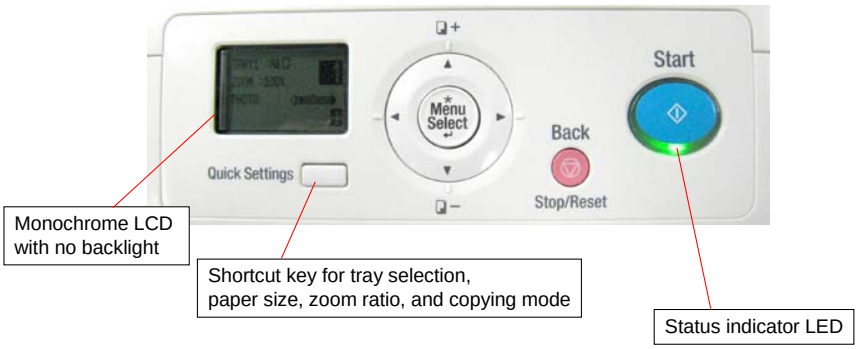


NARRATION: This lesson explains user operations.

3.1 Basic operation

❖Control Panel

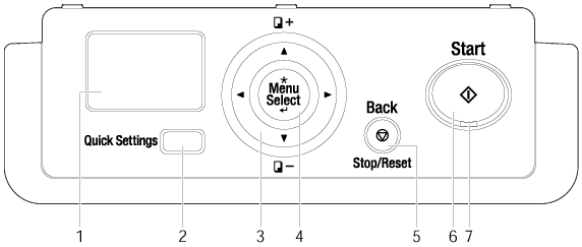
bizhub184/164



bizhub163

NARRATION: The machine is mounted with a control panel of a new type that is designed differently from those of the conventional MFPs, and offers screen configuration by which even a novice operator intuitively knows how to use.

Operation



No.	Name	Description
1	Display	Various screens and messages are displayed.
2	Quick Settings	Press this key to select a menu item on the copy mode screen.
3	▲/▼/◀/▶	Press the corresponding key to select a menu item in the Display or change its setting.
4	Menu/Select	Press this key to enter the menu screen. Press to apply the menu item or setting selected earlier.
5	Back/Stop/Reset	During copy/print operations: Interrupts the operation being run. Menu screen: Press to return to the previous screen. Copy mode screen: Press to clear settings.
6	Start	Press this key to start the copy operation.
7	LED	Steadily lit up to indicate that the machine is in the Sleep mode or ready for receiving a job.

NARRATION: This describes the keys on the control panel.

3.2 Panel simulation

Panel simulation

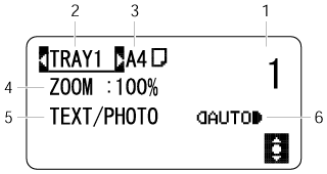
Use the panel simulation to check panel operation.
The panel simulation allows you to enter the service mode.
Check the setting items and experience operations.

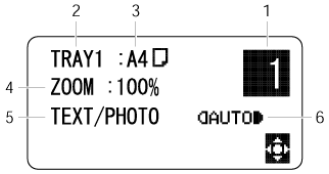
NARRATION: Use the Panel Simulation to check operations that are to be performed on the actual machine.

3.3 Basic settings

- The menu item varies by pressing the Quick Settings key as shown below.

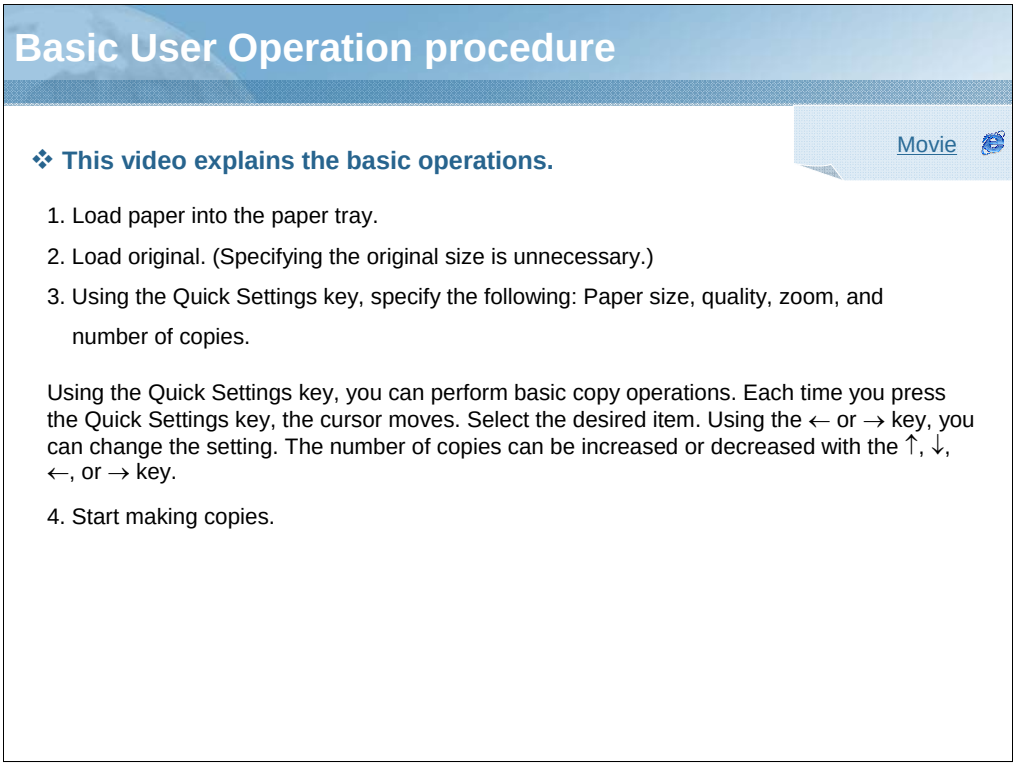
- Press the ◀ or ▶ key to change the settings.





No.	Name	Description
1	Number of copies	Specify the number of copies you desire. Press the ▲ or ▼ key to change the number of copies by one at a time and the ◀ or ▶ key to change the number of copies by ten at a time.
2	Paper tray	Select the paper tray loaded with the paper to be used for copying.
3	Paper size	Select the size of the paper loaded in the paper tray.
4	Zoom ratio	Set the zoom ratio of the image to be copied.
5	Quality	Select the setting for the image type of the original to better adjust the copy quality/density.
6	Density	Adjust copy density.

NARRATION: The menu item varies by pressing the Quick Settings key as shown below. Press the left or right key to change the setting of each function. The number of copies can be changed by one at a time using the up or down key, regardless of which function is currently selected. When Number-of-copies is selected, the left or right key may be used to change the setting by ten-at-a-time. For Paper tray, select the paper tray loaded with the paper to be used for copying. For Paper size, select the size of the paper loaded in the paper tray. Zoom ratio can be selected from among fixed ratios or set through manual adjustments. If the PHOTO quality setting is selected, the AUTO density setting cannot be selected.

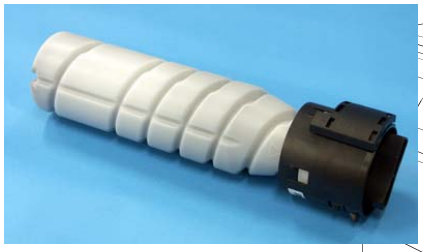


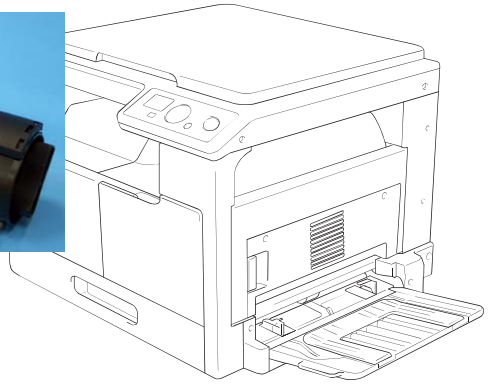
NARRATION: This is the basic operation with the Quick Setting Key.

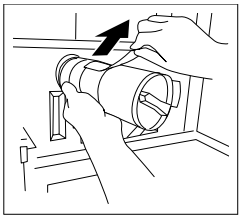
Replacement of the Toner Bottle

Movie

❖ **This video explains the replacement of the Toner Bottle.**

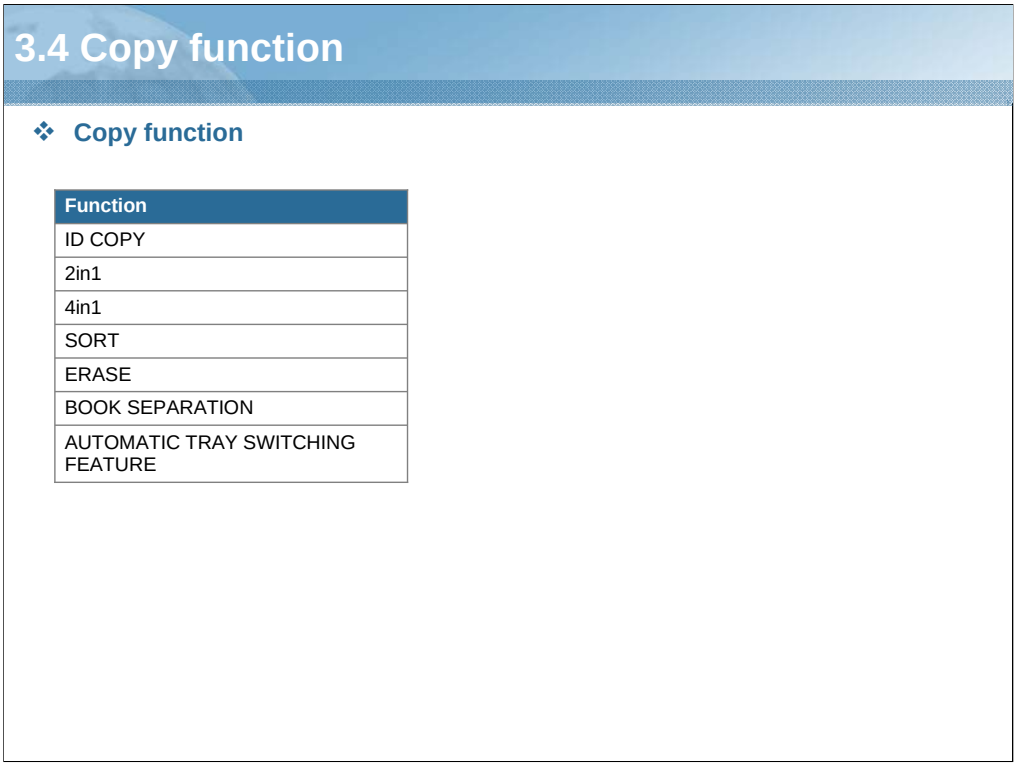






When new Toner Bottle is inserted into the machine, while holding the seal of the Toner Bottle up, slowly peel off the seal.

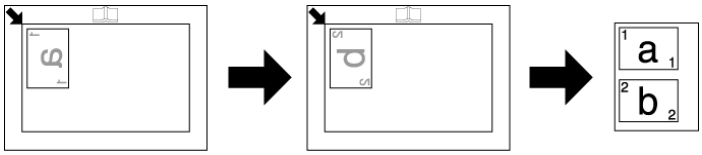
NARRATION: This explains the replacement of the Toner Bottle



NARRATION: These are the major copy functions offered by the machine.

ID COPY

- The image of the front and back sides of a card, for example, a driver's license, is copied onto a single sheet of paper.
- Position the original 4 mm (3/16 inches) away from the Original Scale.

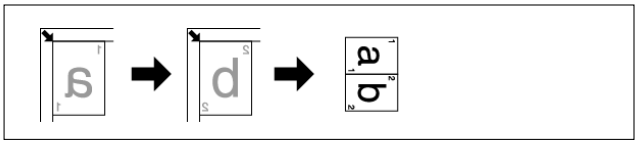


NARRATION: The image of the front and back sides of a card, for example, a driver's license, is copied onto a single sheet of paper. Since the image is printed 4mm (3/16 inches) from the Original Scale, adjust the position of the original as necessary.

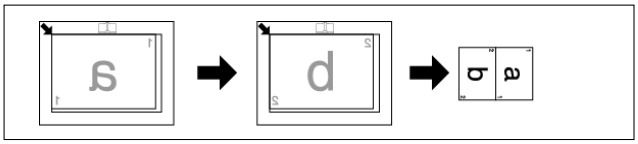
2in1

- Copies images of two original pages onto a single sheet of paper.
- The zoom ratio is automatically set to 70% (Inch: 64%).
- Load paper of the same size as the original.
- If the size of the original differs from that of the paper being used, change the zoom ratio manually.

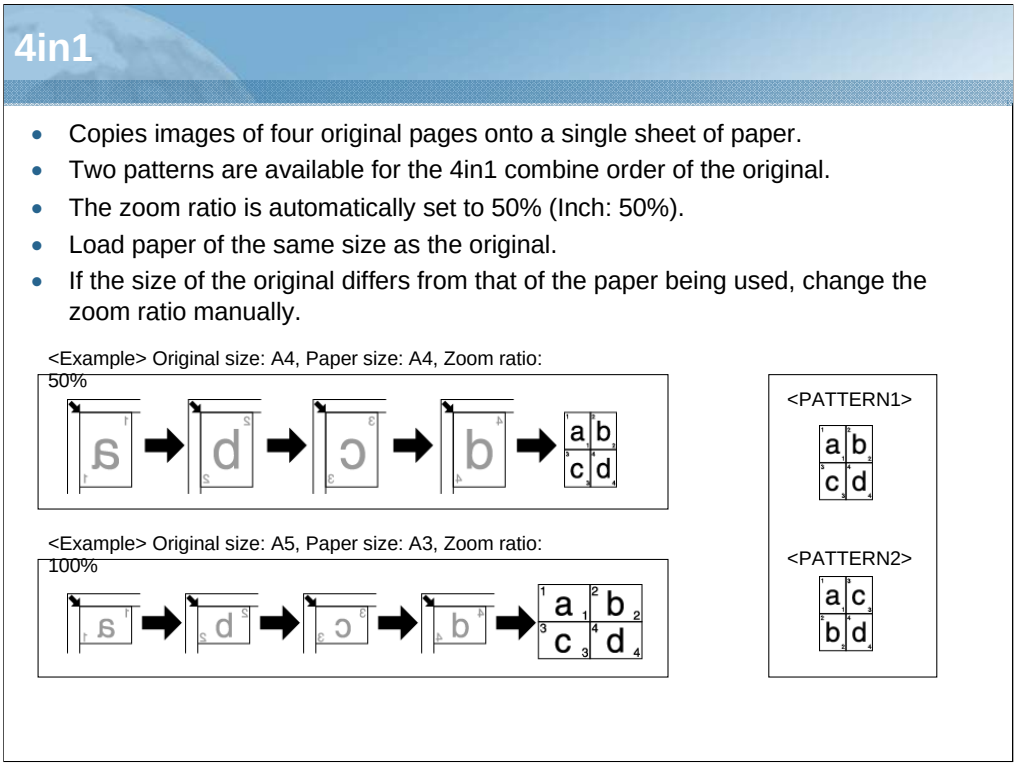
<Example> Original size: A4, Paper size: A4, Zoom ratio: 70%



<Example> Original size: A3, Paper size: A4, Zoom ratio: 50%



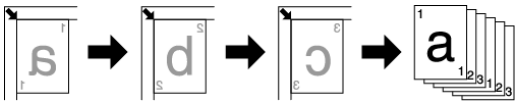
NARRATION: This function copies images of two original pages onto a single sheet of paper. The zoom ratio is automatically set to 70% (Inch: 64%). Load paper of the same size as the original. If the size of the original differs from that of the paper being used, change the zoom ratio manually.



NARRATION: This function copies images of four original pages onto a single sheet of paper. Two patterns are available for the 4in1 combine order of the original. The zoom ratio is automatically set to 50% (Inch: 50%). Load paper of the same size as the original. If the size of the original differs from that of the paper being used, change the zoom ratio manually.

SORT

- When multi-page originals are copied into multiple sets, the copies are fed out into sets, each set containing a copy of each page of the originals.

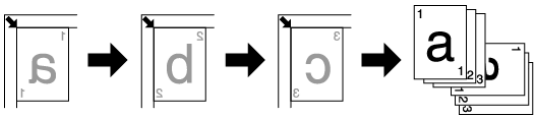


NARRATION: When multi-page originals are copied into multiple sets, the copies are fed out into sets, each set containing a copy of each page of the originals.

SORT+CRISSCROSS MODE

- When sorted copies are to be made under the following conditions, each copy set is automatically fed out and sorted in an alternating crisscross pattern.

- Install the optional Bypass Tray.
- Load Tray 1 and the Bypass Tray with paper of the same size and type and in different directions from each other.
- Specify [CRISSCROSS MODE].

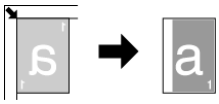


NARRATION:When sorted copies are to be made under the following conditions, each copy set is automatically fed out and sorted in an alternating crisscross pattern. Install the optional Bypass Tray. Load Tray 1 and the Bypass Tray with paper of the same size and type and in different directions from each other. Specify CRISSCROSS MODE.

ERASE

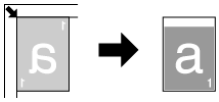
- Copies can be produced by erasing unnecessary areas around the original text.
- Place the original so that its upper side faces the back side of the machine.
- The width of the area to be erased can be set between 5 and 20 mm, in 1 mm increments.

LEFT ERASE



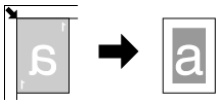
Erases the left side of the original.

UPPER ERASE



Erases the upper side of the original.

FRAME ERASE



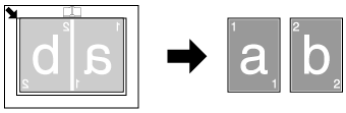
Erases the four sides of the original.

NARRATION: Copies can be produced by erasing unnecessary areas around the original text. Place the original so that its upper side faces the back side of the machine. The width of the area to be erased can be set between 5 and 20 mm, in 1 mm increments.

BOOK SEPARATION

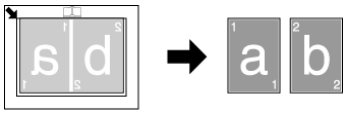
- A double-page spread original such as a book or magazine is copied onto two separate pages, the image of the original being divided about the mark on the Original Scale.
- Place the original so that its upper side faces the back side of the machine.
- Align the center of the original with the mark on the Original Scale.
- The length of the paper that can be loaded should not exceed 216mm (8-1/2 inches).

LEFT BINDING



The left-hand page of the double-page spread original is copied first.

RIGHT BINDING



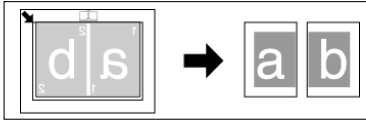
The right-hand page of the double-page spread original is copied first.

NARRATION: A double-page spread original such as a book or magazine is copied onto two separate pages, the image of the original being divided about the mark on the Original Scale. Place the original so that its upper side faces the back side of the machine. Align the center of the original with the mark on the Original Scale. The length of the paper that can be loaded should not exceed 216mm (8-1/2 inches).

ERASE + BOOK SEPARATION

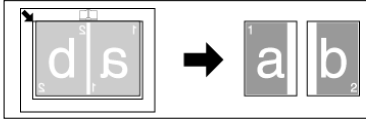
- When Book Separation is set, the unwanted areas around the text of the original are erased as Book Separation copies are made.
- The width of the area to be erased can be set between 5 and 20 mm, in 1 mm increments.

FRAME ERASE



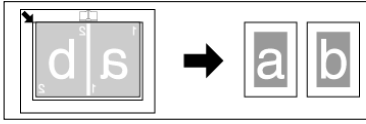
Select this option to make Book Separation copies by erasing the entire areas around the text of the double-page spread original.

CENTER ERASE



Select this option to make Book Separation copies by erasing the center binding of the double-page spread original.

CENTER+FRAME ERASE



Select this option to make Book Separation copies by erasing the entire areas around the text and the center binding of the double-page spread original.

NARRATION: When Book Separation is set, the unwanted areas around the text of the original are erased as Book Separation copies are made. The width of the area to be erased can be set between 5 and 20 mm, in 1 mm increments.

AUTOMATIC TRAY SWITCHING FEATURE

- If the following conditions are met, the other paper tray is automatically selected when a paper tray that was selected becomes empty while printing copies.

- Install the optional Bypass Tray.
- Load paper of the same size and type into Tray 1 and the Bypass Tray, and ensure the same orientation of paper.

NARRATION: If the following conditions are met, the other paper tray is automatically selected when a paper tray, that was selected, becomes empty while printing copies. Install the optional Bypass Tray. Load paper of the same size and type into Tray 1 and the Bypass Tray, and ensure the same orientation of paper.

3.5 UTILITY

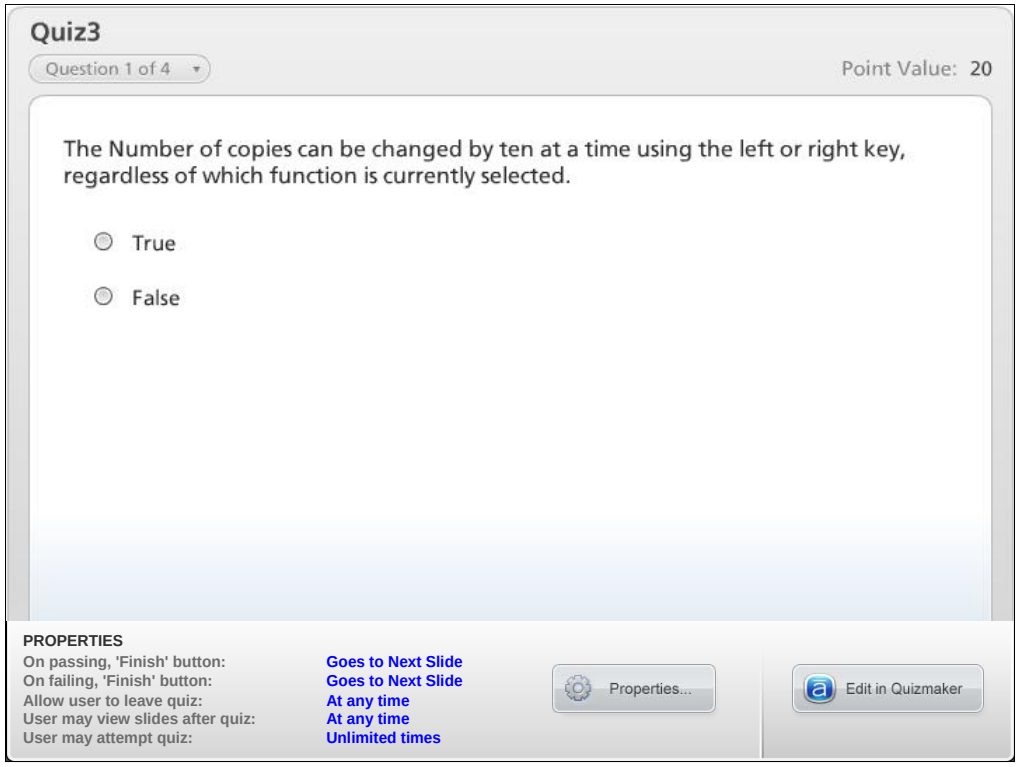
	Description	
MACHINE SETTING	AUTO PANEL RESET	Off/30sec/1min/2min/3min/4min/5min/6min/7min/8min/9min
	SLEEP MODE	1 to 240 min.
	SLEEP SHIFT	ENABLE/DISABLE
	DENSITY (BOOK)	MODE1/MODE2
	PRINT DENSITY	7 scales
	LCD CONTRAST	4 scales
	KEY SPEED SETTING	Time to Start: 0.1/0.3/0.5/1.0/1.5/2.0/2.5/3.0sec. Interval: 0.1/0.3/0.5/1.0/1.5/2.0/2.5/3.0sec.
Custom Size Memory	MEMORY1	X: 140 to 432mm Y: 90 to 297mm
	MEMORY2	
JOB SETTING	TRAY PRIORITY	TRAY1/MULTI BYPASS
	TRAY1 PAPER	PAPER SIZE: AUTO/SIZE INPUT/MEMORY1 MEMORY2 Paper type:Plain paper/Recycled paper/Special paper/Card
	BYPASS PAPER	PAPER SIZE: AUTO/SIZE INPUT/MEMORY1 MEMORY2 Paper type:Plain paper/Recycled paper/Special paper/Card
	PRINT PRIORITY	COPY/PRINT
	CRISSCROSS MODE	Off/On

NARRATION: This is a list of settings in the Utility mode.

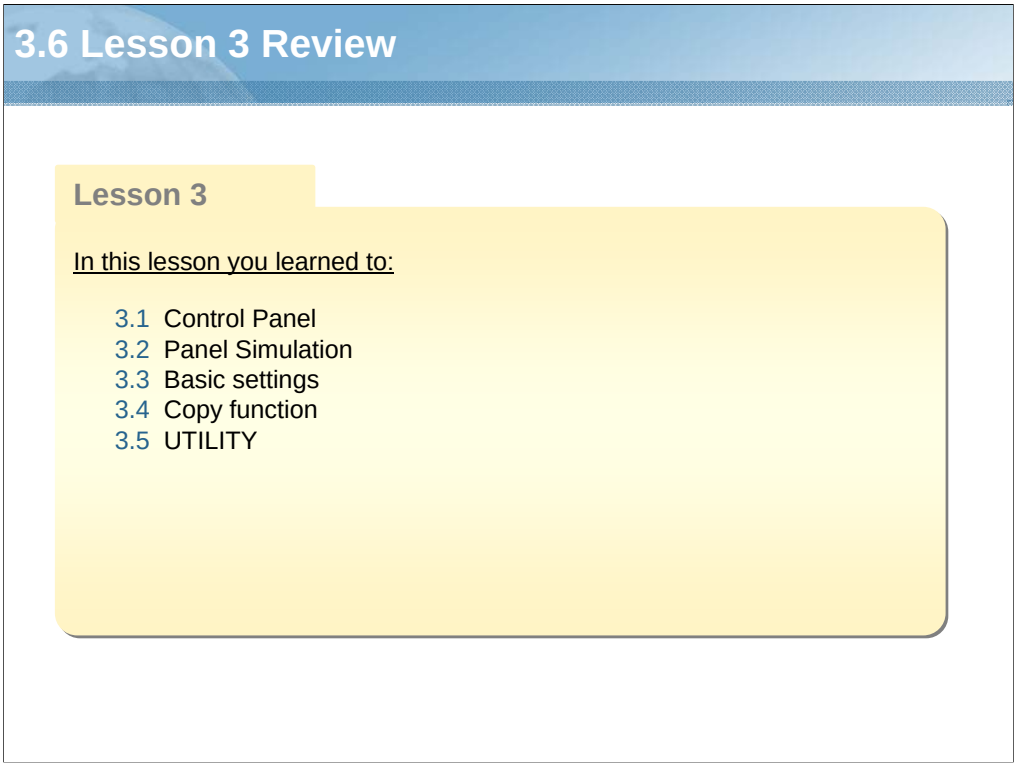
UTILITY

	Description	
Copy Setting	Quality Priority	TEXT/PHOTO TEXT PHOTO
	Density Priority	AUTO/MANUAL
	Density Level	AUTO: 3 scales MANUAL: 9 scales
	Erase Setting	LEFT/UPPER/FRAME(5 to 20mm)
	Sort Priority	Off/On
	4in1 Copy Order	PATTERN1/PATTERN2

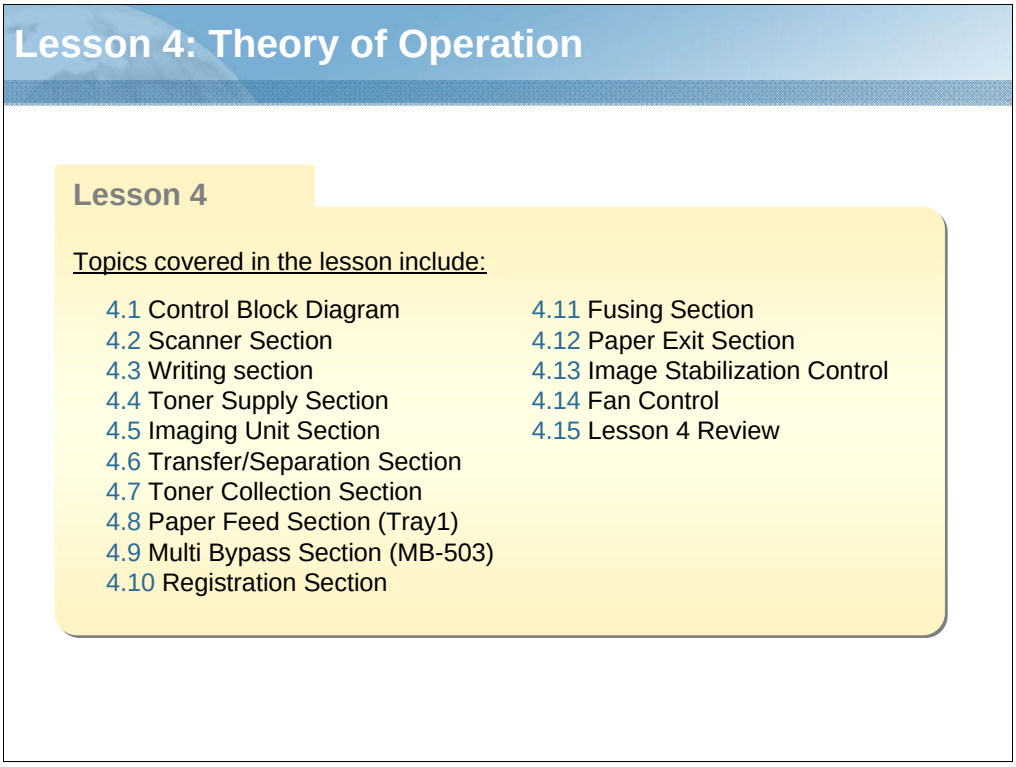
NARRATION: This is a continuation of the list of settings in the Utility mode.



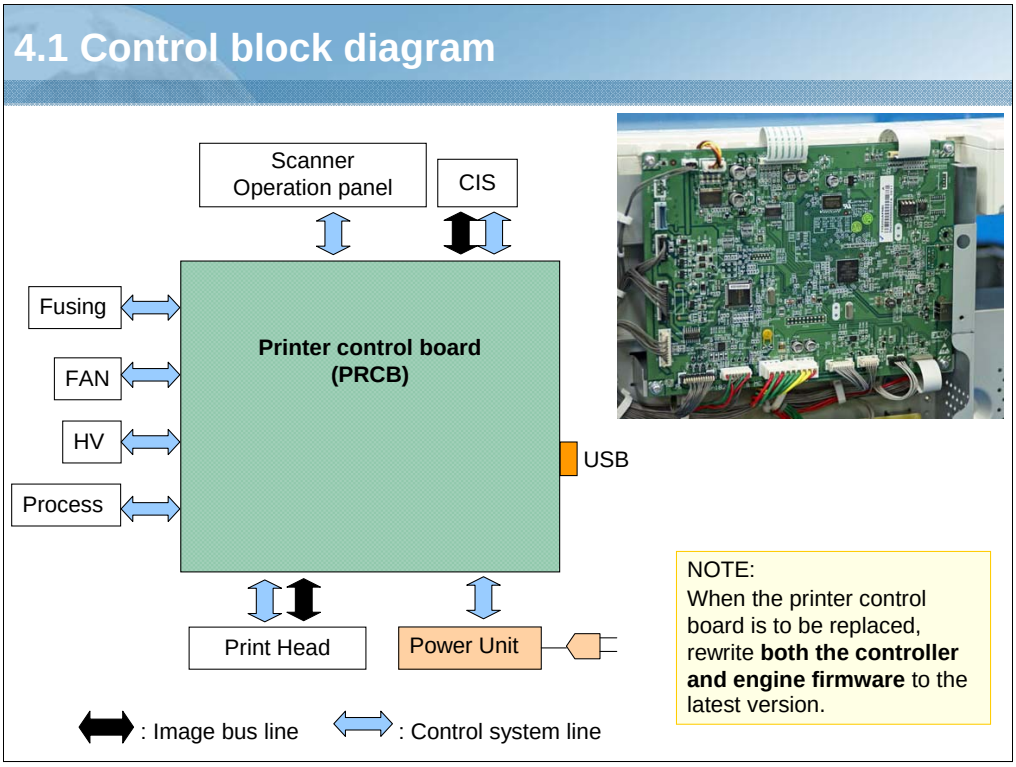
NARRATION: This is the review quiz for this lesson.



NARRATION: In this lesson, you learned about the following items.



NARRATION: This lesson explains the Theory of Operation.



NARRATION: This illustration shows the control structure of the printer.

Conventionally, two main control boards, the print control board (PRCB) and the MFP board (MFPB), are used to separately control the engine portion and controller portion, respectively.

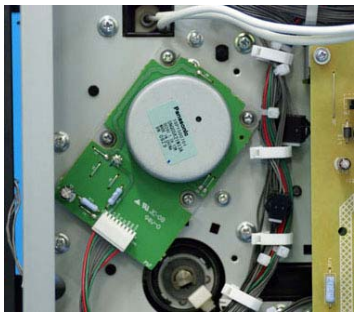
This machine uses a single printer control board to control the mechanisms and electronics of the engine, image processing, and data transfer to and from the PC.

The printer control board has two types of firmware: engine and controller firmware. Therefore, when the printer control board is to be replaced, rewrite both the controller and engine firmware to the latest version.

Motors

The main motor serves as the single source of drive for the following rollers as they relate to the engine.

- Paper feed roller
- Multi bypass feed roller
- Registration roller
- Photo conductor
- Developing roller
- Transfer roller
- Fusing roller
- Exit roller



Main motor

In addition to the main motor, the engine also includes the toner supply motor and the scanner motor.

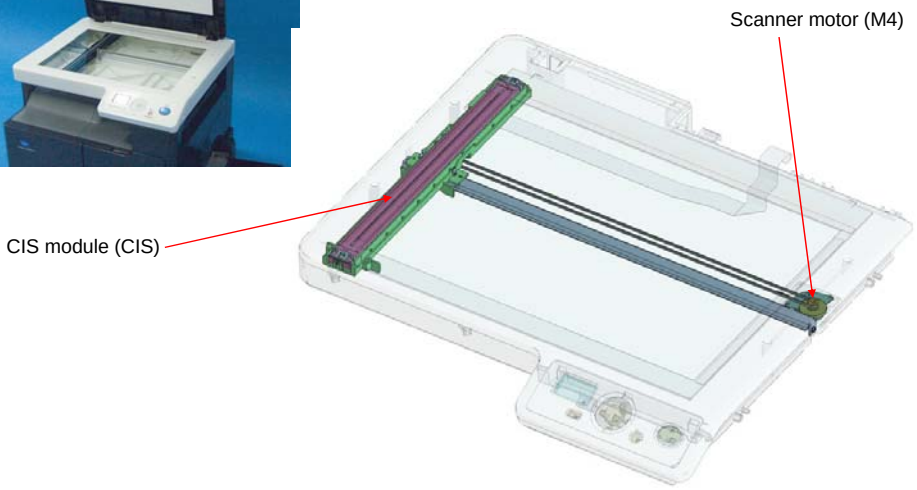
NARRATION: This describes the drive of motors used in the machine.

NOTE:

The bizhub 164 and bizhub 184 share the same paper transport speed. The number of copies to be produced per minute is varied by changing the distance between sheets of paper.

4.2 Scanner Section

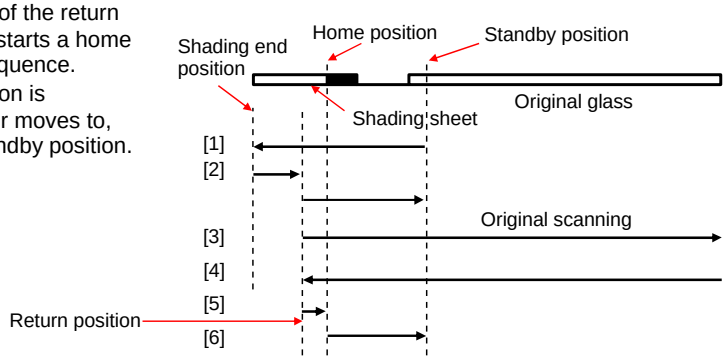
❖ **Configuration**



NARRATION: These illustrations show the configuration of the scanner section.

Control when the Start key is pressed

1. If the start key is pressed, the scanner starts a shading sequence from the standby position to shading end position.
   If any key but the start key is pressed, the scanner starts a pre-shading sequence from the standby position to the shading end position.
2. After the pre-shading sequence, the scanner is stopped at the return position. After the lapse of 30 seconds thereafter, the scanner moves to the standby position.
3. If the start key is pressed in step 1, above, or during a period of 30 seconds after the pre-shading sequence, the scanner starts a scan motion immediately.
4. After the scan motion is finished, the scanner makes a return motion to move back to the return position.
5. After the completion of the return motion, the scanner starts a home position detection sequence.
6. After the home position is detected, the scanner moves to, and stops at, the standby position.



NARRATION: This illustration shows the control when the start key is pressed.

Scanner sensors

❖ **Read element**

The CIS (contact image sensor) reads the original.
It is moved crosswise as driven through a belt from the scanner motor.

❖ **Original size detection**

The machine has no original size detection sensors. If the zoom ratio is 100%, therefore, only the area of the paper size is read according to the setting of the paper size. Assume, for example, that A4 paper is loaded in the cassette and the paper size setting is A4. Then, the machine reads only the A4 area, even if an original of A3 size is placed.

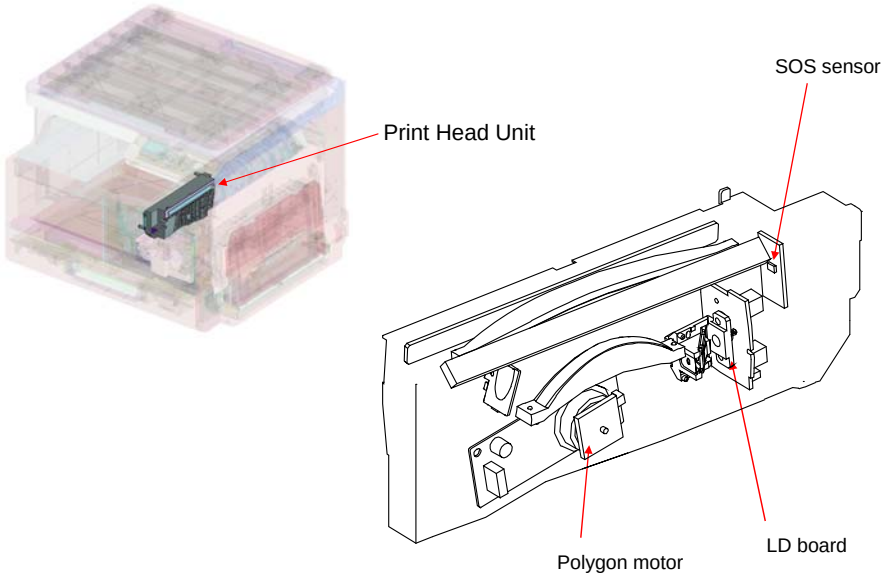
❖ **Home position detection**

The reading parts do not have a sensor to detect the home position of the scanner.
Therefore, the green LED lights turn ON while the scanner is moving, so that the reference position (the border between the white and black of the shading sheet) is searched as the scanner moves from that position to the home position.

NARRATION: This explains the sensors of the scanner section.

4.3 Writing Section

❖ **Configuration**

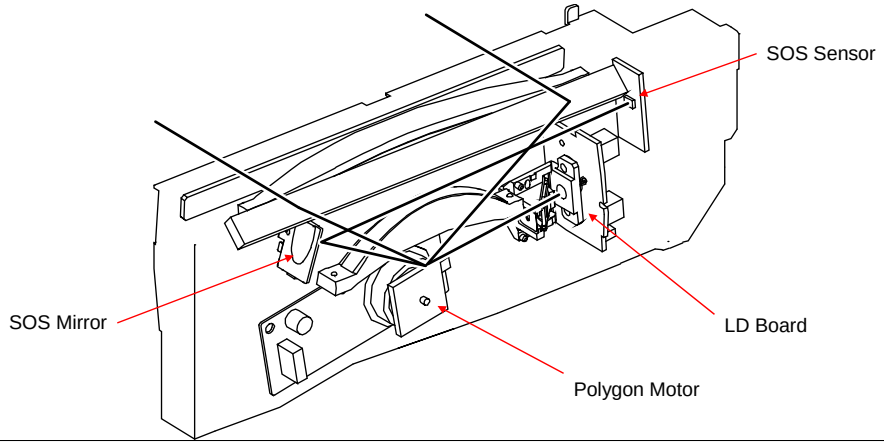


NARRATION: These illustrations show the configuration of the writing section.

Operation

❖ Overview

- When a laser beam strikes the polygon mirror, light reflected off the Polygon Mirror is directed at the drum by way of the lens and return mirror.
- The polygon mirror has four faces, being turned at high speeds by the polygon motor.
- The SOS mirror and SOS sensor keep the timing constant, at which, emission of a laser beam is started for each main scanning line.



NARRATION: These illustrations show the overview of the operation. A single-beam laser diode and a four-face polygon mirror are used for the print head. The return mirror is used to achieve a crosswise layout of the print head.

PH Start / PH Turn Counter

The machine counts the number of times the polygon motor is energized and the period of time through which it is kept energized.

The counts may be checked using
[COUNTER] – [SUPPLIES COUNTER] available from the service mode.

Rather than using the number of copies produced, the polygon motor energization time provides an accurate basis for determining the drive of the PH, from which PH utilization information can be acquired.

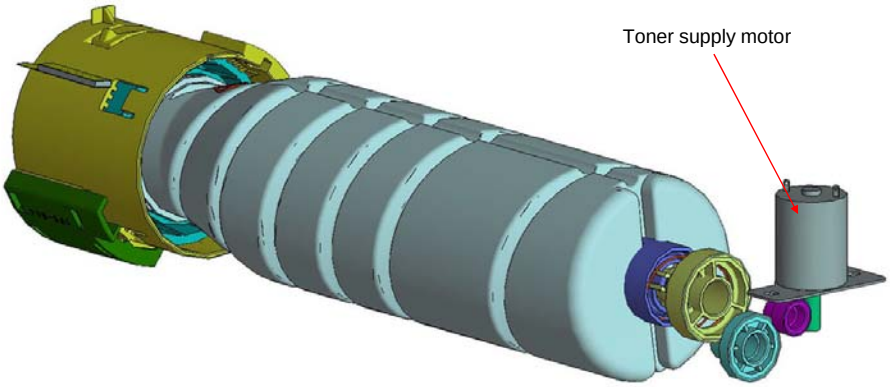
After the PH unit has been replaced with a new one, two counters, PH Start and PH turn, must be cleared by following the steps given below.

Select [SERVICE MODE] - [CLEAR DATA] - [SUPPLIES COUNTER] and clear the counter value of [PH Start] and [PH Turn].

NARRATION: The machine counts the number of times the polygon motor is energized and the period of time through which it is kept energized.
After the PH unit has been replaced with a new one, two counters, PH Start and PH turn, must be cleared by following the steps given below.

4.4 Toner Supply Section

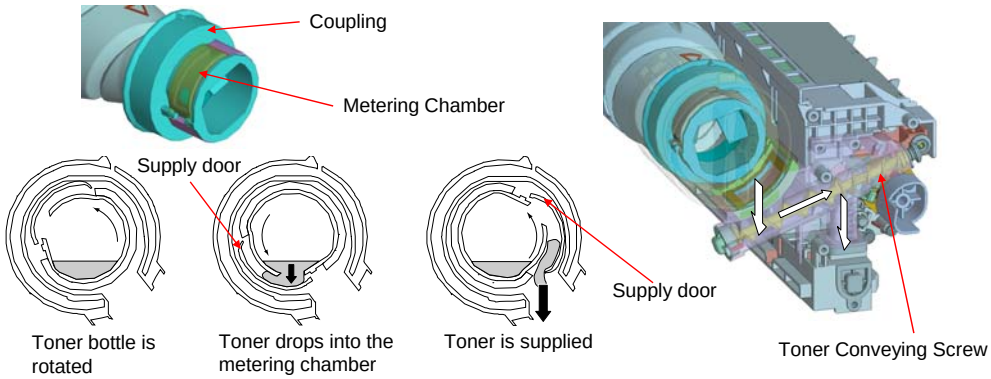
❖ **Drive**



NARRATION: This illustration shows the drive of the toner supply section.

Toner Replenishing Mechanism

- Toner is supplied from the toner bottle to the developer mixing chamber.
  1. The toner replenishing motor (M2) turns the coupling, which turns the toner bottle.
  2. To regulate the amount of toner supplied from the toner bottle, there is a metering chamber provided in the outer race of the coupling.
  3. When the toner bottle turns, toner in the metering chamber drops.
  4. When the toner bottle is turned again, the supply door is opened by the weight of toner in the metering chamber, and the toner drops.
  5. Toner from the metering chamber is conveyed by the toner conveying screw into the developer mixing chamber.
  6. The toner conveying screw is turned by the toner replenishing motor (M2).



NARRATION: These illustrations show the toner replenishing mechanism. Toner is supplied from the toner bottle to the developer mixing chamber.

Toner Replenishing Control

- The amount of toner consumed for the image (number of dots) is calculated for each print during printing. The calculated value is compared with the T/C ratio read by the TCR sensor. The main body thereby determines whether to replenish toner or not.
- If toner is to be replenished, the toner bottle is rotated one complete turn.
- The T/C ratio is calculated after the replenishing sequence. If the recalculated T/C ratio is equal to, or more than, a predetermined value in %, the replenishing sequence is terminated.
  If the ratio is less than the predetermined value, the toner replenishing sequence is carried out again.

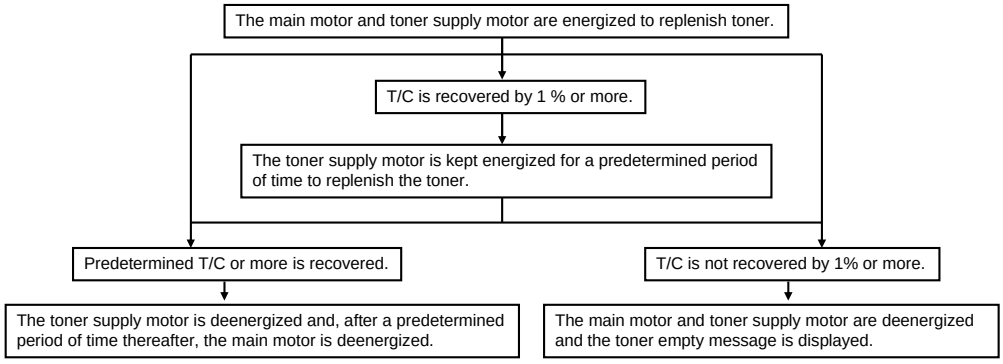
NARRATION: This explains the toner replenishing control.

T/C Recovery Mode (1/2)

- If the T/C ratio is low, the main body forcibly prohibits the initiation of a new print cycle, and recovers the required T/C ratio level.
- Two patterns of control are performed according to the timing at which the T/C recovery sequence is performed.

❖ T/C recovery sequence A

- This sequence is executed when a toner empty condition is detected during a print cycle.
- As soon as a toner empty condition is detected, the print cycle is temporarily interrupted and toner replenishing sequence is carried out.

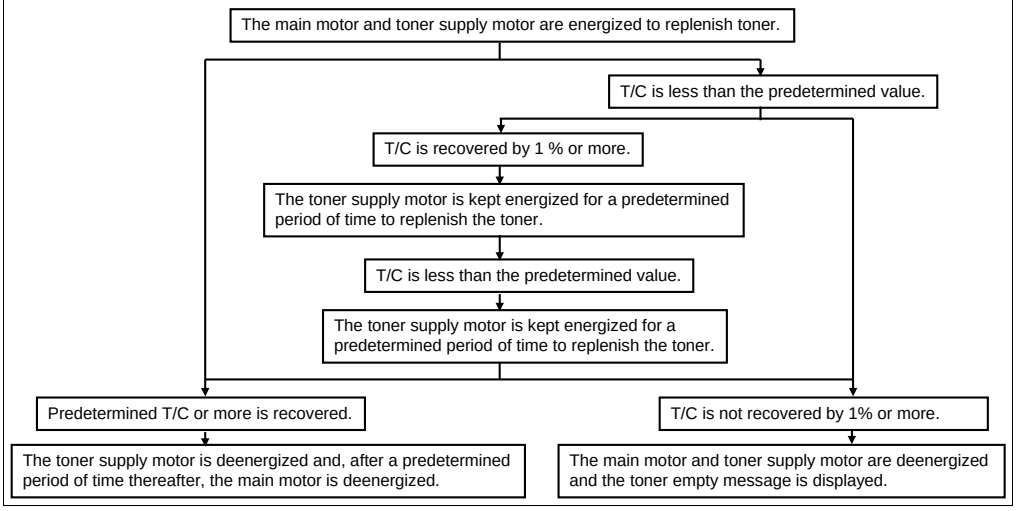


NARRATION: This explains the T/C Recovery Mode. If the T/C ratio is low, the main body forcibly prohibits the initiation of a new print cycle, and recovers the required T/C ratio level. Two patterns of control are performed according to the timing at which the T/C recovery sequence is performed.

T/C Recovery Mode (2/2)

❖ **T/C recovery sequence B**

- This sequence is executed when:
  The front cover or right door is opened and closed in a toner empty condition.
  Power is turned OFF and ON in a toner empty condition.
  A Toner Supply command is issued.



NARRATION: This illustration explains T/C recovery sequence B. This sequence is executed when: The front cover or right door is opened and closed in a toner empty condition, power is turned OFF and ON in a toner empty condition, or a Toner Supply command is issued.

Detection of toner empty condition

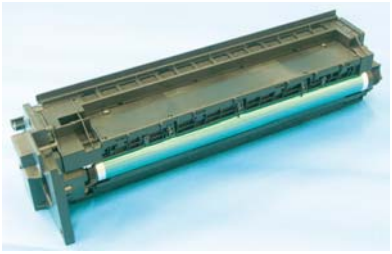
- The main body detects a toner empty condition based on the T/C ratio in the developing unit.
- After a toner empty condition is detected, the main body enters the T/C recovery mode to replenish toner.
- If the normal T/C ratio is not recovered even after the T/C recovery sequence is executed, a corresponding message is displayed on the control panel, and the main body is brought to a stop.

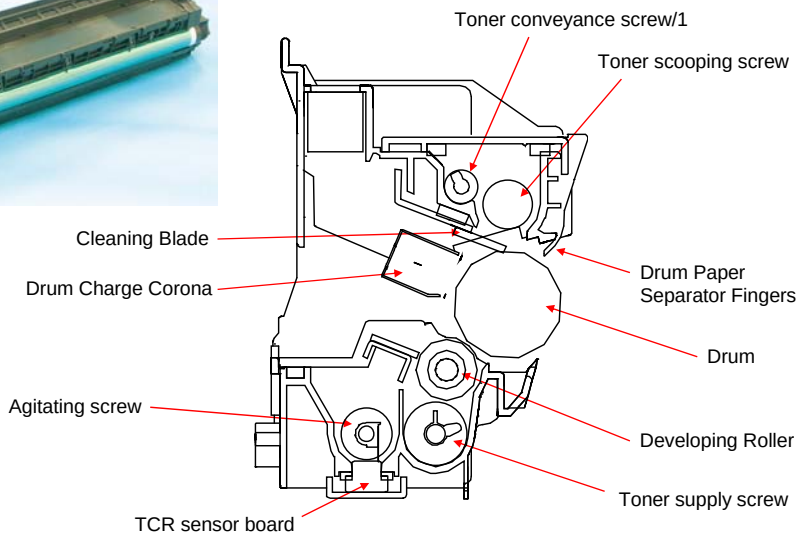
Condition	Printing	State
T/C 6% or more	Enabled	Normal
T/C less than 6%	Enabled	Toner empty
T/C ratio of less than 4% is detected and a condition of less than 4% T/C is detected five consecutive times.	Prohibited	Toner empty (main body stop)

NARRATION: This table explains the detection of a toner empty condition. The main body detects a toner empty condition based on the T/C ratio in the developing unit.

4.5 Imaging Unit Section

❖ **Configuration**





NARRATION: These illustrations show the configuration of the imaging unit section.

Precautions for replacement of the imaging unit

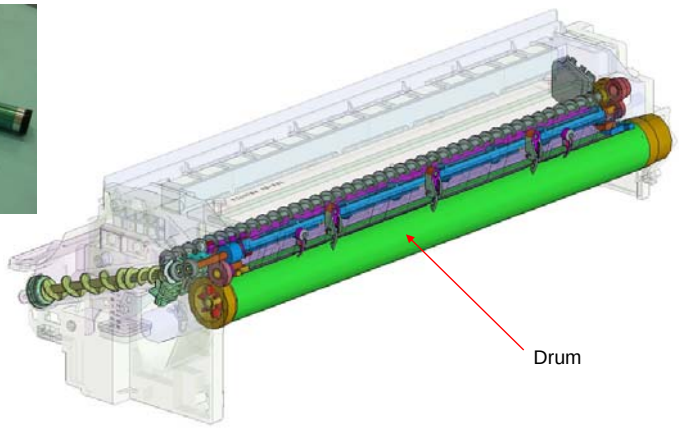
When removing the imaging unit, first remove the toner cartridge. If the imaging unit is removed first, toner will spill because the shutter is open at the toner supply portion of the toner cartridge.

When, on the other hand, the imaging unit is to be inserted in the machine, first insert the imaging unit and then insert the toner cartridge.

NARRATION: These are the precautions to be observed when the imaging unit is replaced with a new one.

Drum Section

❖ **Configuration**



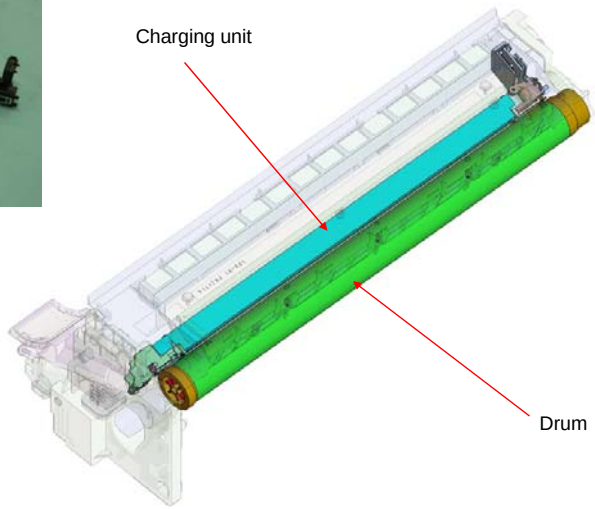
❖ **Drum drive**

- The drum is driven by the main motor via a gear train.
- The main motor drives not only the drum, but also the image transfer, paper feed, and timing drive systems.

NARRATION: These illustrations show the configuration of the drum section and drum drive of the imaging unit. The drum is driven by the main motor via a gear train. The main motor drives not only the drum, but also the image transfer, paper feed, and timing drive systems.

Charge Corona Section

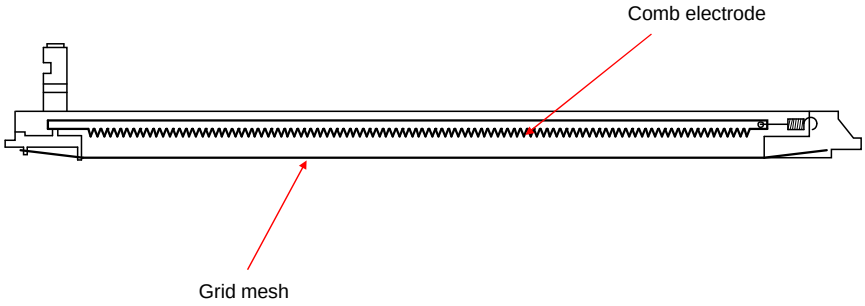
❖ **Configuration**



NARRATION: These illustrations show the configuration of the charge corona section of the imaging unit.

Operation

- The surface of the drum is deposited with charge through corona discharge from the drum charge corona.
- The grid mesh interposed between the corona wire and the drum ensures that a uniform charge is deposited across the entire surface of the drum.
- The corona unit has a comb electrode that discharges only toward the grid mesh. This results in the amount of ozone produced being smaller than with the wire electrode.

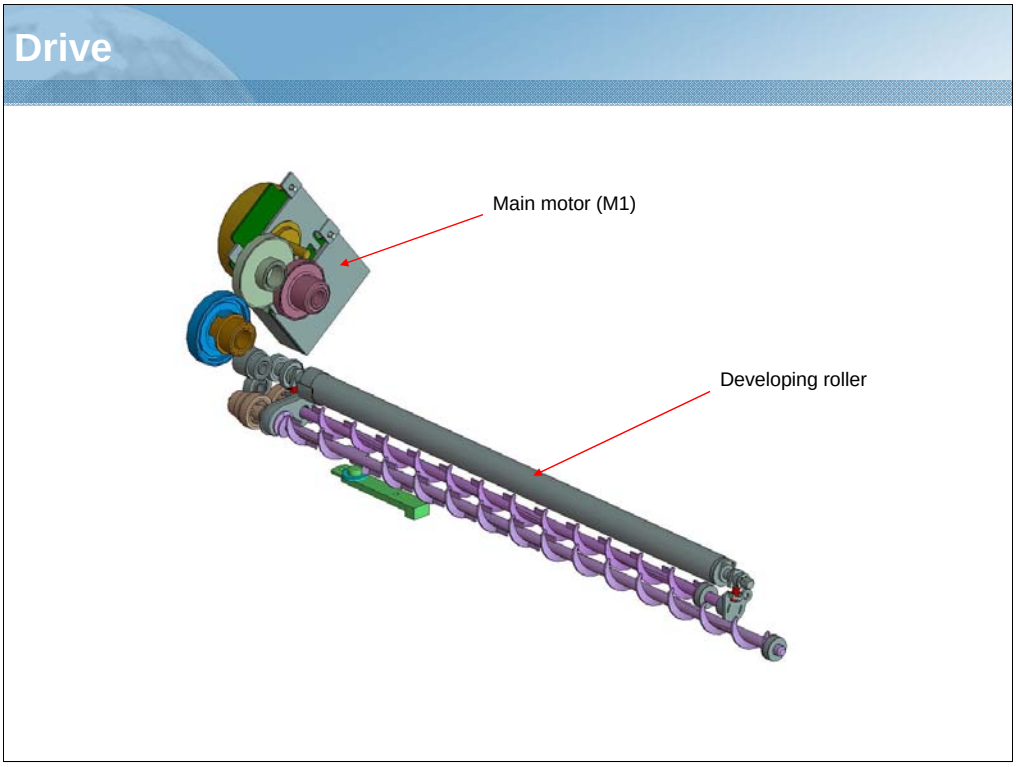


NARRATION: This illustration explains the operation.

Developing Section

❖ **Configuration**

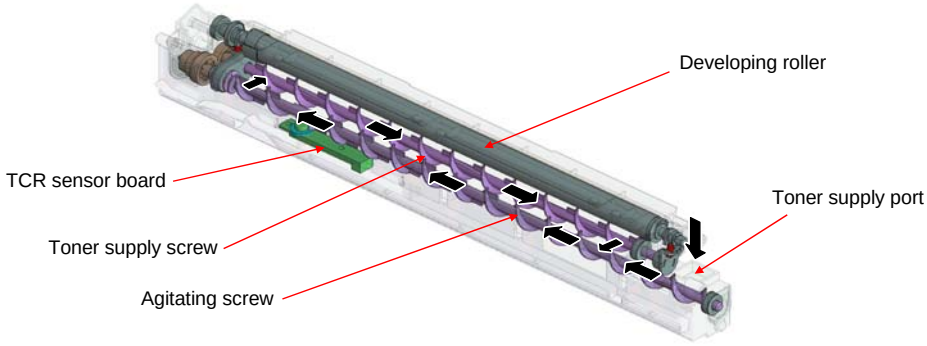
NARRATION: This illustration shows the configuration of the developing section of the imaging unit.



NARRATION: This illustration shows the drive of the developing section of the imaging unit.

Toner flow

1. Toner in the toner bottle is conveyed to the toner supply port of the developing unit via toner conveying screw/2.
2. The toner is conveyed to the rear side of the main body by the agitating screw and to the front side of the main body by the toner supply screw.
3. The toner level detection mechanism (TCR sensor) detects the T/C ratio of the developer in the developer mixing chamber.
4. The toner conveyed to the toner supply screw is conveyed to the developing roller.
5. At this time, the amount of toner on the developing roller is regulated by the doctor blade.
6. Toner on the developing roller is affixed (conveyed) to the latent image part on the drum.



NARRATION: This illustration explains toner flow.

TCR Sensor Automatic Adjustment

- The developer in the developer mixing chamber is forcibly agitated and the output voltage of the TCR sensor is adjusted.
- The output voltage serves as data for calculating the T/C ratio. This adjustment must be made whenever the developers are changed. That is, make the TCR sensor automatic adjustment only when the developers are changed.

NARRATION: This explains the TCR sensor automatic adjustment.

Imaging unit life

When the life value of the imaging unit is reached, the maintenance call (M2) icon appears at the lower side of the control panel. Printing can, however, continue in this condition. When the life stop value is then reached, the CAUTION display appears and no new print cycle can thereafter be initiated. Operation, that is, whether to stop or continue when the life stop value is reached, can be selected using [IU LIFE STOP MODE] of [SERVICE'S CHOICE], available from the service mode. The default setting is "stop".

Status	Approx. number of prints upon detection	IU LIFE STOP MODE	
		STOP	CONTINUOUS
Life	55K	Display "M2"	Display "M2"
Life Stop	69K	Display "CAUTION" MAINTENANCE CALL (M2) CALL SERVICE	Display "M2"

NOTE: Image quality of printed pages is not guaranteed after the life value (55K) is reached. This describes the life of the imaging unit.

NARRATION: This describes the life of the imaging unit. The life of the imaging unit is calculated using the period of time through which the drum is rotated (main motor drive time).

PC backward rotation control

When the PC drum is rotated for a predetermined period of time or more, it is turned backward instantaneously. This backward rotation of the PC drum helps remove paper dust deposited on the cleaning blade, thereby preventing the PC drum from being degraded by the paper dust and extending its service life.

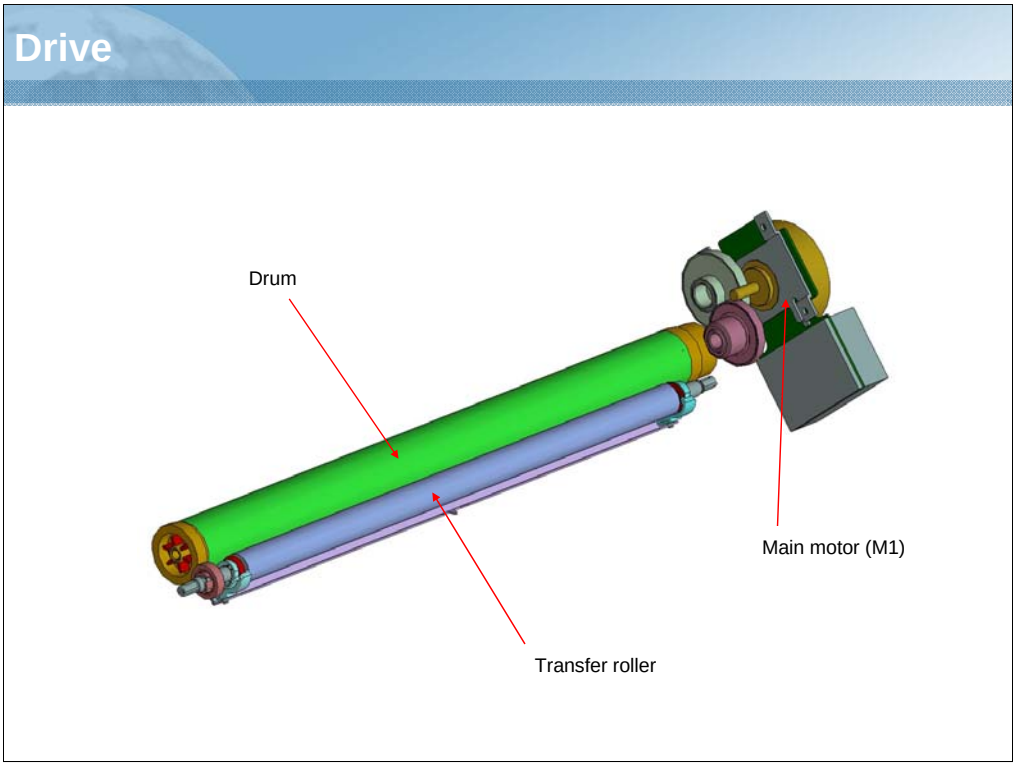
The backward rotation is performed after the completion of a job.

NARRATION: This explains the PC backward rotation control.

4.6 Transfer/Separation Section

❖ **Configuration**

NARRATION: This illustration shows the configuration of the transfer/separation section.



NARRATION: This illustration shows the drive of the transfer/separation section.

Transfer voltage output control

- A positive charge is applied to the image transfer roller to transfer the toner image formed on the surface of the drum onto the paper.
- The charge applied to the image transfer roller is varied according to the following conditions to ensure that image transfer efficiency is stabilized.

1. Paper width: The smaller the paper width, the greater the amount of charge.
2. B/W ratio of image: The higher the coverage, the greater the amount of charge.

❖ Transfer roller cleaning control

- DC positive and negative transfer bias voltages are alternately applied to the transfer roller. This allows toner residue on the surface of the transfer roller to be transferred back to the drum, thus cleaning the transfer roller.
- The toner transferred back to the transfer belt is collected by the cleaning blade.

(1) Operation timing

- The cleaning is performed during a warm-up cycle after the front or right door is opened and closed.

NARRATION: This explains the transfer voltage output control. A positive charge is applied to the image transfer roller to transfer the toner image formed on the surface of the drum onto the paper. The charge applied to the image transfer roller is varied according to the following conditions to ensure that image transfer efficiency is stabilized.

Paper Separation control

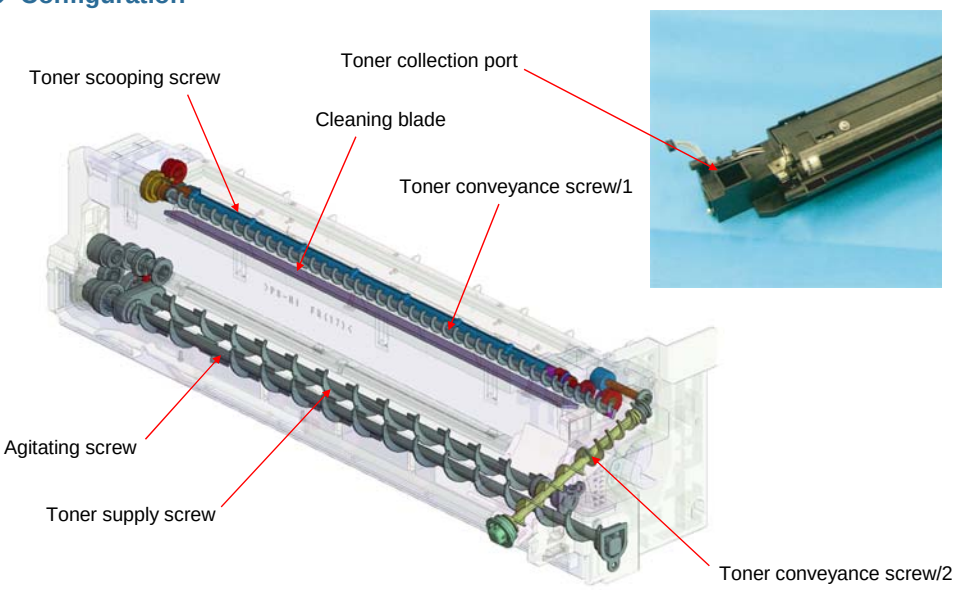
❖ **Paper neutralization**

- To neutralize any charge potential left in the paper which has undergone the image transfer stage, there is the charge neutralizing plate fitted to the guide plate after the transfer roller.

NARRATION: This explains the paper separation control.

4.7 Toner Collection Section

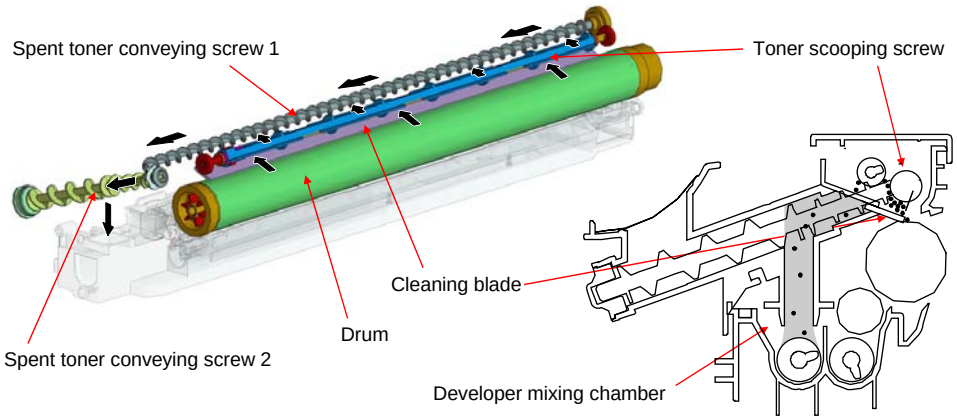
❖ **Configuration**



NARRATION: These illustrations show the configuration of the toner collection section.

Toner collecting path

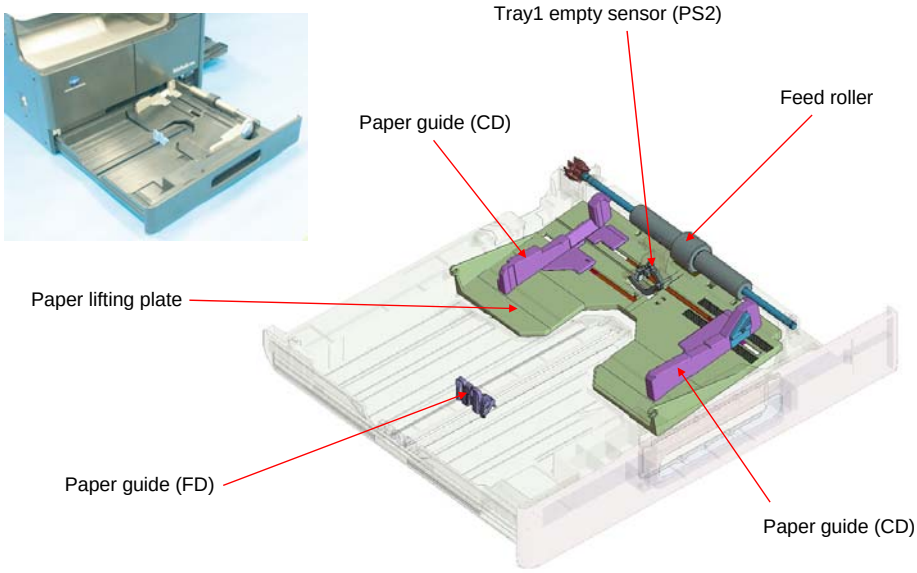
- The cleaning blade is used to scrape residual toner off the surface of the drum.
- The toner removed by the cleaning blade is scooped up by the toner scooping screw and conveyed by way of toner conveyance screw/1 and toner conveyance screw/2 onto the developer mixing chamber.
- The following control is provided to prevent paper dust from being wedged between the cleaning blade and the drum. When the cumulative period of time through which the drum has been driven reaches a predetermined value, the drum is turned backward (by turning the Main Motor backward).



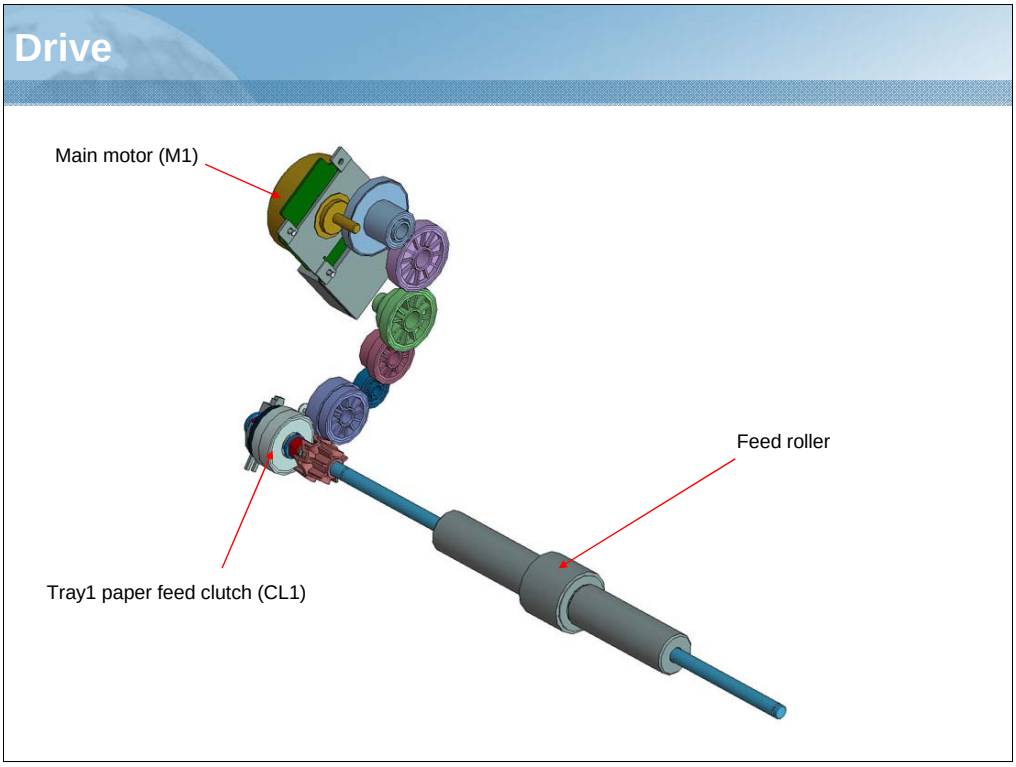
NARRATION: These illustrations show the toner collecting path.

4.8 Paper Feed Section (Tray1)

❖ Configuration



NARRATION: These illustrations show the configuration of Tray 1 of the paper feed section.



NARRATION: This illustration show the drive of tray 1 of the paper feed section.

Paper size detection

As the paper tray and multi-bypass tray do not have sensors that detect the size of loaded paper, you need to manually specify the size of loaded paper from the control panel.

Depending on the duration between when the paper fed into the machine turns ON the registration sensor and when the paper turns OFF the sensor, the paper length is determined.

If the length of the paper you specified in the paper size setting is different from that of the paper loaded in the paper tray and fed into the machine, paper size error occurs and the corresponding message appears on the control panel. However, the fed paper continues to be conveyed and it is ejected from the machine.
In this case, you need to load the appropriate size of paper or change the paper size setting from the control panel.

PAPER SIZE ERROR
RESET PAPER (# xx)

If the difference between the size specified in the paper size setting and the size detected by the engine is ± 260 mm or more, paper jam at the transfer section occurs.

NARRATION: As the paper tray and multi-bypass tray do not have sensors that detect the size of loaded paper, you need to manually specify the size of loaded paper from the control panel.

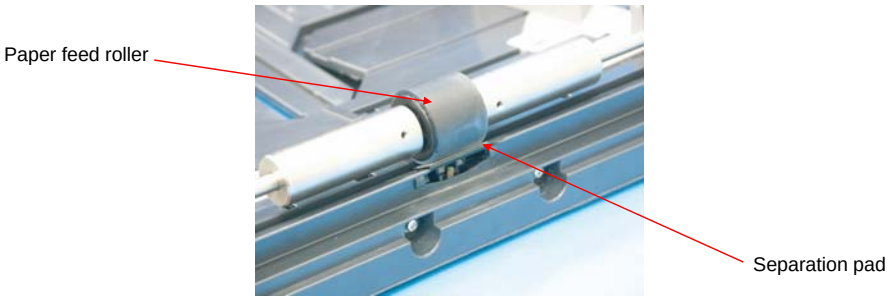
Paper feed control

❖ Pick-up control

- When the Tray1 paper feed clutch (CL1) is energized, drive from the main motor (M1) is transmitted to the paper feed roller via the paper pick-up clutch and the pick-up roller is rotated.

❖ Multiple sheet feeding prevention control

- The fixed separation pad system is used for media separation. This ensures that only the first sheet of media is taken up and fed in.



❖ Paper size detection control

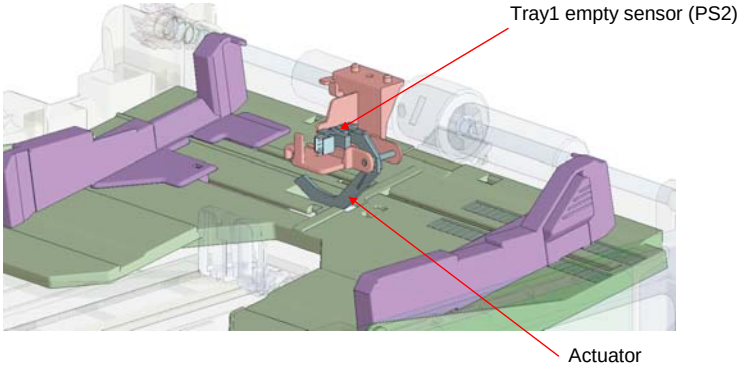
- The main body has no system or mechanism for detecting the paper size. The paper size is therefore specified from the control panel after the paper is loaded in the main body.

NARRATION: This explains the paper feed control.

Remaining paper level detection control

❖ **Paper empty detection**

- The Tray1 empty sensor (PS2) detects a paper-empty condition in the drawer.
- When paper runs out, the actuator is raised to unblock the tray1 empty sensor, and the corresponding message appears on the control panel.
- Pressing the start key does not start a copy cycle when no paper is loaded in the drawer.



NARRATION: This illustration explains the remaining paper level detection control. The Tray1 empty sensor (PS2) detects a paper-empty condition in the drawer.

Paper Feed Section

❖ **Paper feed retry control**

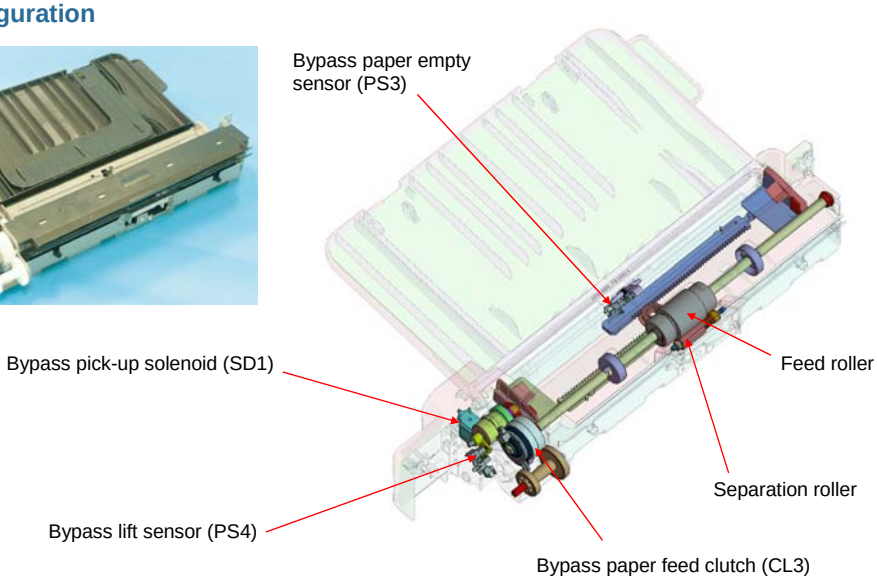
To reduce the number of paper feed failures, if the registration sensor is not activated after the lapse of a predetermined period of time, after the paper feed clutch has been energized, the paper feed sequence is temporarily halted and a paper feed retry sequence is carried out.
If the registration sensor is not activated after the lapse of a predetermined period of time, even after two paper feed retry sequences, a paper misfeed results.
Up to two retry sequences are also performed during paper feed from the multi bypass tray.

NARRATION: This explains the paper feed retry control. To reduce the number of paper feed failures, the paper feed sequence is temporarily halted and a paper feed retry sequence is carried out.

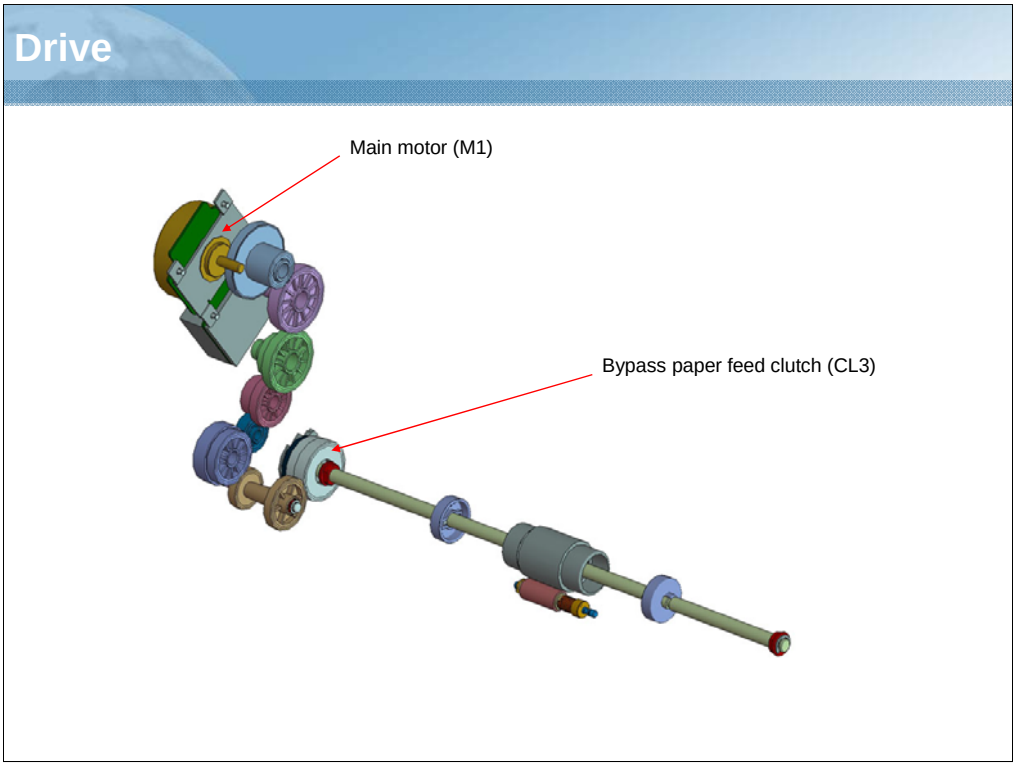
4.9 Multi Bypass Section (MB-503)

*: Standard on the product shipped to China.

❖ Configuration



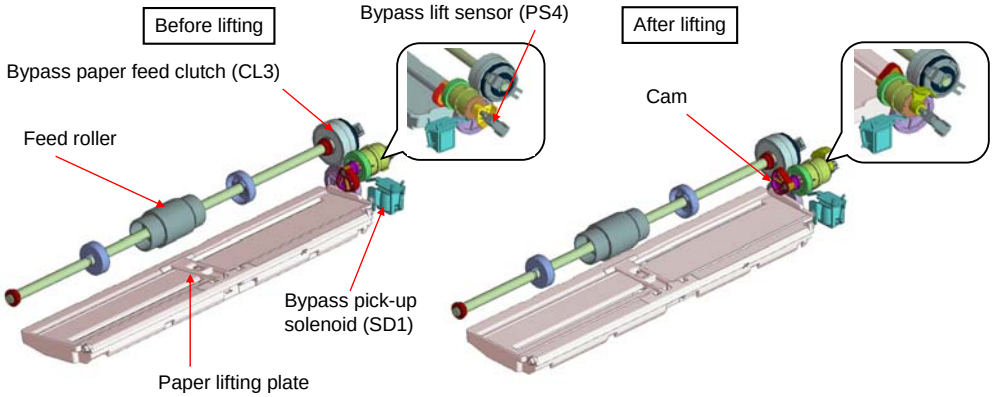
NARRATION: These illustrations show the configuration of the MB-503 multi bypass section.



NARRATION: This illustration shows the drive of MB-503 multi bypass section.

Up/down control

- The paper lifting plate is raised to press the paper stack on the tray up against the feed roller.
- When the bypass paper feed clutch is energized, the cam is rotated to raise the paper lifting plate.
- When the bypass paper feed clutch is energized again, the cam is rotated to lower the paper lifting plate.
- The ascent and descent motion of the paper lifting plate is controlled using the bypass lift sensor. The ascent or descent motion is stopped after the lapse of a predetermined period of time after the sensor has been blocked or unblocked



NARRATION: The paper lifting plate is raised to press the paper stack on the tray up against the feed roller.

Paper feed control

❖ Pick-up control

- The feed roller is driven by the main motor through the bypass paper feed clutch.
- When the bypass paper feed clutch (CL3) is energized, drive from the main motor (M1) is transmitted to the pick-up roller via the paper pick-up clutch and the pick-up roller is rotated.

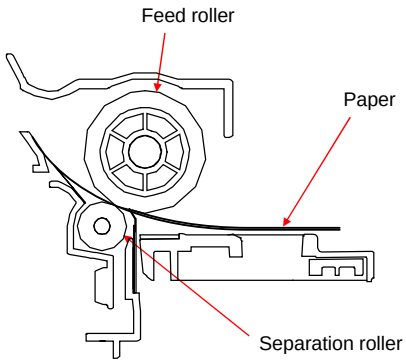
❖ Multiple sheet feeding prevention control

- The coefficient of friction between the Feed Roller and Separation Roller is effectively used to prevent double feed of paper.

When one sheet of paper is taken up:
The coefficient of friction on the front side of the sheet of paper taken up and fed through the space between the feed roller and separation roller, is the same as that on the backside of the sheet of paper, allowing the paper to be properly fed into the machine.

When two or more sheets of paper are taken up:

- The coefficient of friction between the paper and the separation roller is greater than that between the sheets of paper, which allows only the top sheet of paper to be fed into the machine.

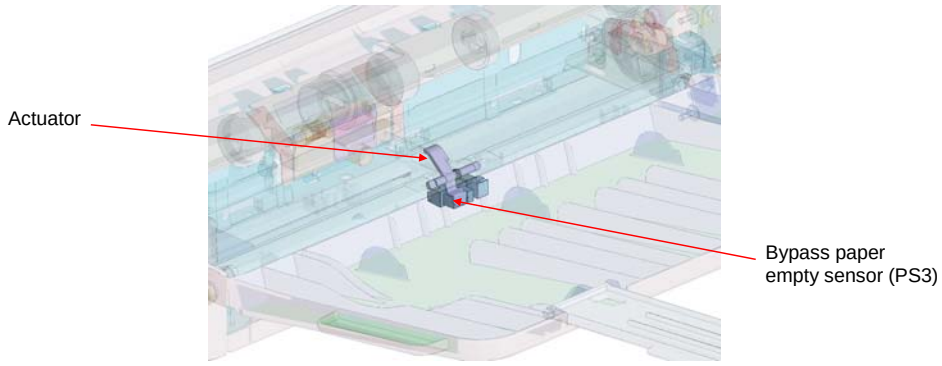


NARRATION: This illustration shows the paper feed control.

Remaining paper level detection control

❖ Paper empty detection

- The bypass paper empty sensor (PS3) detects a paper-empty condition in the drawer.
- When paper runs out, the actuator is raised to block the tray1 empty sensor.
- When the tray1 empty sensor is blocked, the bypass pick-up solenoid is energized and the paper lifting plate is lowered.
- Pressing the start key does not start a copy cycle when no paper is loaded in the bypass section.



NARRATION: The bypass paper empty sensor detects a paper-empty condition in the drawer.

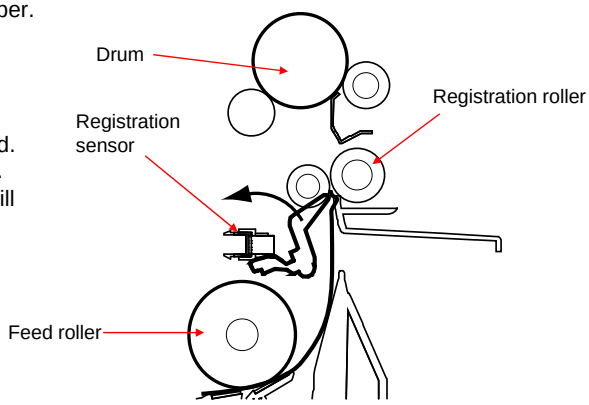
4.10 Registration Section

❖ Registration control

- The main motor provides the drive for the registration roller.
- The registration roller clutch is connected to the registration roller. When the registration clutch is energized, the driving force of the main motor is transmitted to the registration roller. This rotates the registration roller.
- During paper transport, a loop is formed in the paper between the tray 1 feed roller (bypass feed roller) and the registration roller to thereby correct any skew in the paper.
- The registration roller is controlled in order to synchronize the timing when the unit starts writing the image and conveying paper.

(1) Adjustment

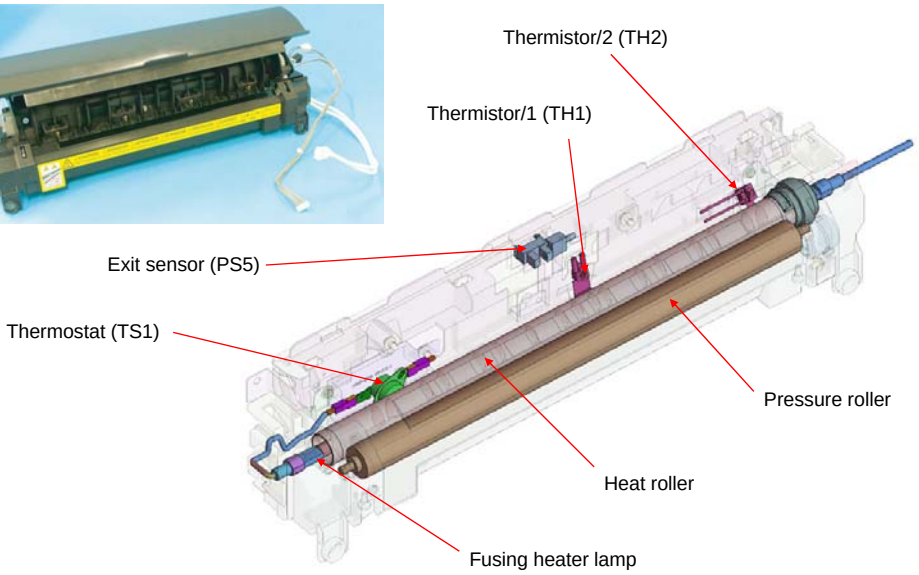
- The amount of the loop in the paper can be varied using "SERVICE'S CHOICE – LOOP Ad. (TRAY1) / LOOP Ad. (BYPASS)". Changing the adjustment value will vary the timing at which the registration clutch is energized.



NARRATION: This illustration shows the registration section.

4.11 Fusing Section

❖ **Configuration**

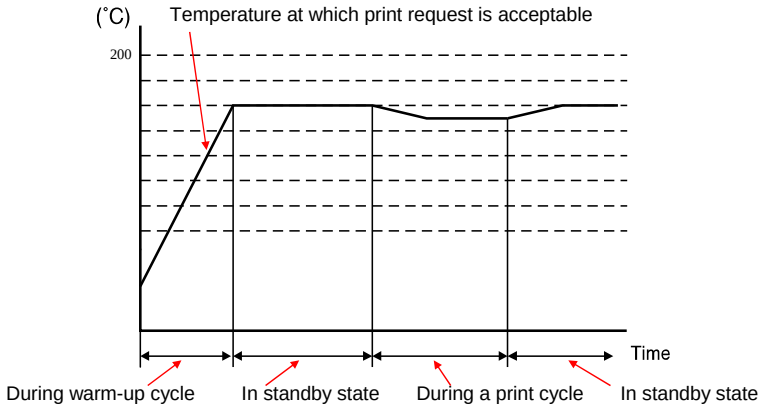


NARRATION: These illustrations show the configuration of the fusing section.

Fusing temperature control

- The fusing heater lamp is turned on and off to keep a set temperature on the surface of the Fusing Roller.
- The fusing roller surface temperature is detected by using a thermistor that translates the temperature to a corresponding electrical signal.
- If the fusing roller temperature becomes excessively high, the fusing roller heater lamp is shut down.

Typical changes in temperature during an ordinary print cycle carried out after power is turned ON



NARRATION: This graph explains the fusing temperature control.

PPM Control

- To ensure good fusing characteristics of the image printed on the media, the number of continuously-prints is held low, thus preventing fusing characteristics during the multiprint cycle from being degraded.
- When card 1/2 is selected, the main motor is deenergized to provide a delay of 4 seconds in the paper feed start sequence, regardless of the paper size.
  Further, the PPM control (4-sec. delay in paper feed start sequence) is performed, if +2 or more is selected for the plain paper temperature choice in the FUSER TEMP menu of SERVICE'S CHOICE.

NARRATION: This explains the PPM Control.

Control for preventing roller edge temperature from rising

- If paper of a small size or card1/2 is used to run a multi-copy cycle, the temperature on the edges of the heat roller tends to increase, so that the temperature of the heat roller varies among different spots of the roller.
- A temperature increase prevention control is performed during a multi-print cycle to thereby delay the paper feed operation, so that the temperature of the heat roller can be controlled to achieve a uniform temperature of the roller.
- Thermistor/2 measures the temperature of the edges of the roller.
- When a predetermined temperature or more is detected from the edges of the roller, the print cycle is temporarily stopped.
- The print cycle is resumed as soon as the temperature of the edges of the roller decreases to reach the predetermined level. If the temperature does not decrease to the predetermined level, even after the lapse of 30 seconds, the print cycle is resumed regardless of whether the predetermined temperature is reached.

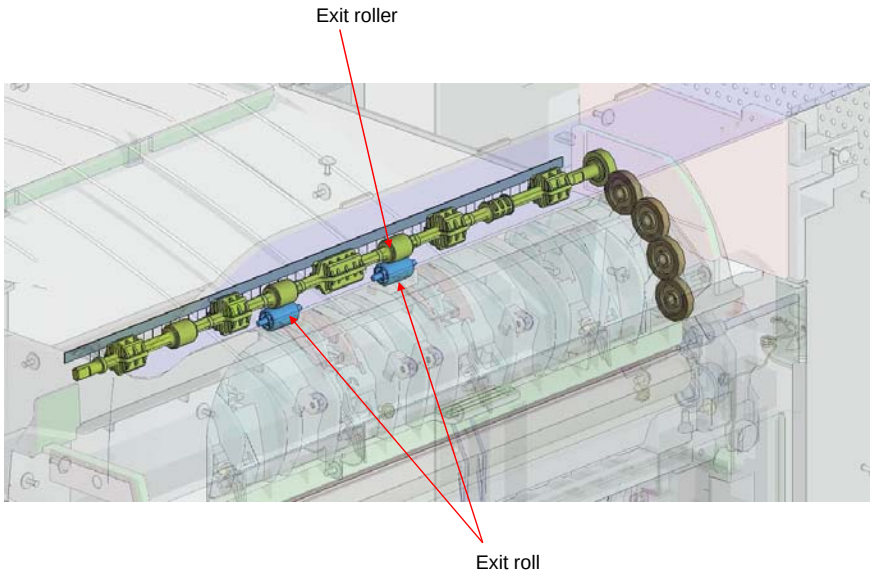
❖ New article detection

- The fusing unit is not mounted with any new article detection mechanism.
- If the fusing unit is replaced with a new one, reset the counter using [CLEAR DATA] of the service mode.
  [SERVICE MODE] / [CLEAR DATA] / [PM COUNTER] / [FUSING] menu.

NARRATION: This explains the control for preventing the roller edge temperature from rising. If the fusing unit is replaced with a new one, reset the counter using [CLEAR DATA] of the service mode.

4.12 Paper Exit Section

❖ **Configuration**

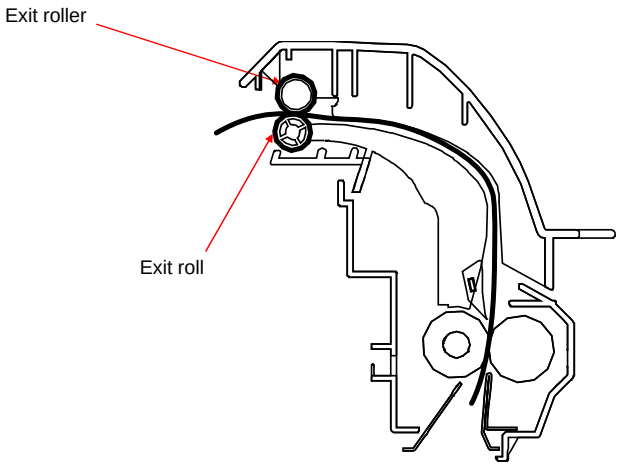


NARRATION: This illustration shows the paper exit section.

Conveyance control

❖ Conveyance path

- The exit roller is driven by the main motor.
- The media conveyed from the fusing section is fed out into the exit tray.



NARRATION: This illustration shows the conveyance control.

4.13 Image Stabilization Control (1/2)

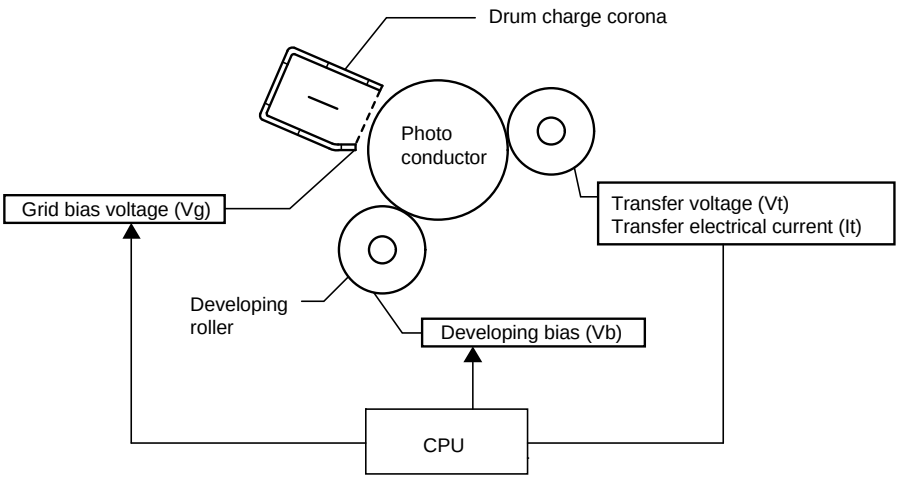
❖ Configuration

- The following image stabilization controls are provided to ensure stabilized copy image.

Purpose	Means	Control
To stabilize image density.	Grid bias voltage (Vg) Developing bias (Vb)	The Vg/Vb control voltage is varied to bring Vg/Vb to an appropriate level according to the following settings. • ID ADJUST (Service mode) • VG ADJUST (Service mode) • Print Density (Utility) • SUPPLIES LIFE COUNT. (Service mode)
To stabilize image transfer.	Transfer voltage (Vt) Transfer electrical current (It)	The image transfer output is varied to bring the image transfer electrical current to an appropriate level according to the following conditions. • Paper type • Paper size • B/W ratio of image

NARRATION: This table shows the configuration of the image stabilization control.

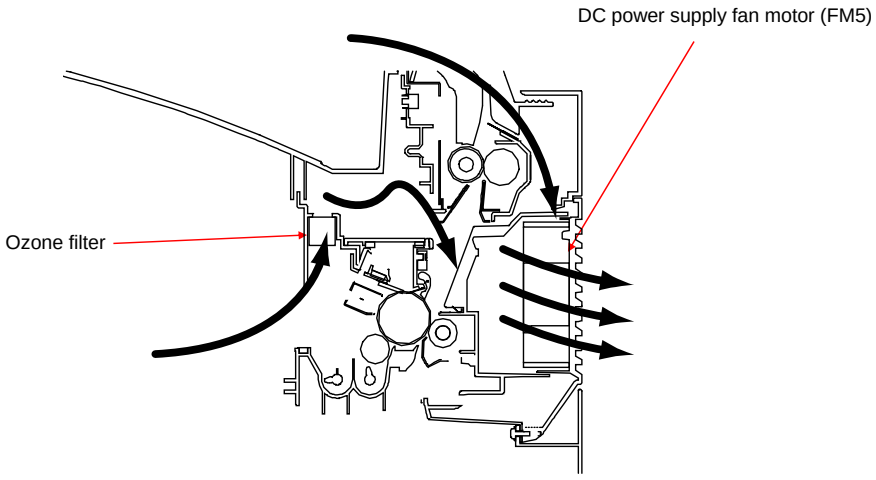
Image Stabilization Control (2/2)



NARRATION: This is a continuation of the configuration of the image stabilization control.

4.14 Fan Control

❖ **Configuration**



NARRATION: This illustration shows the configuration of the fan control.

Operation

❖ Function

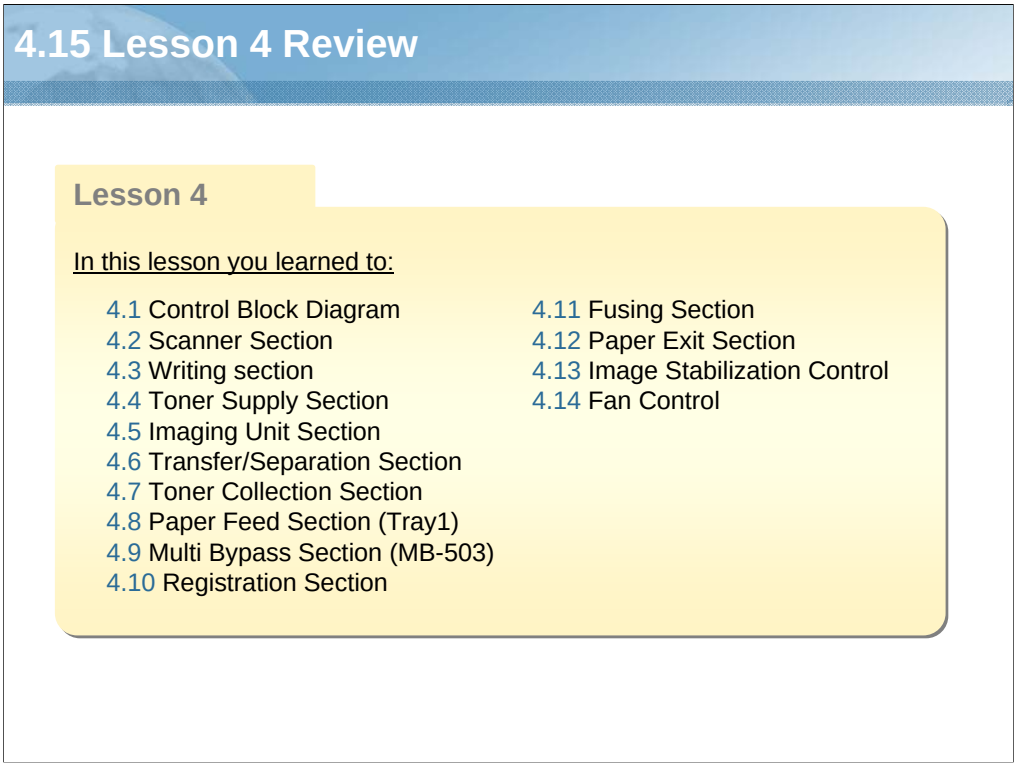
Motor Name	Function (purpose)
DC power supply fan motor (FM5)	▪A fan motor draws air from the area around the fusing unit to the outside to prevent the machine interior temperature from running high. In addition, the fan motor pulls paper being transported up through a suction force to help stabilize paper transport. ▪Ozone produced from the drum charge corona is absorbed by the ozone filter from the air drawn by a fan motor to the outside.

❖ Fan control

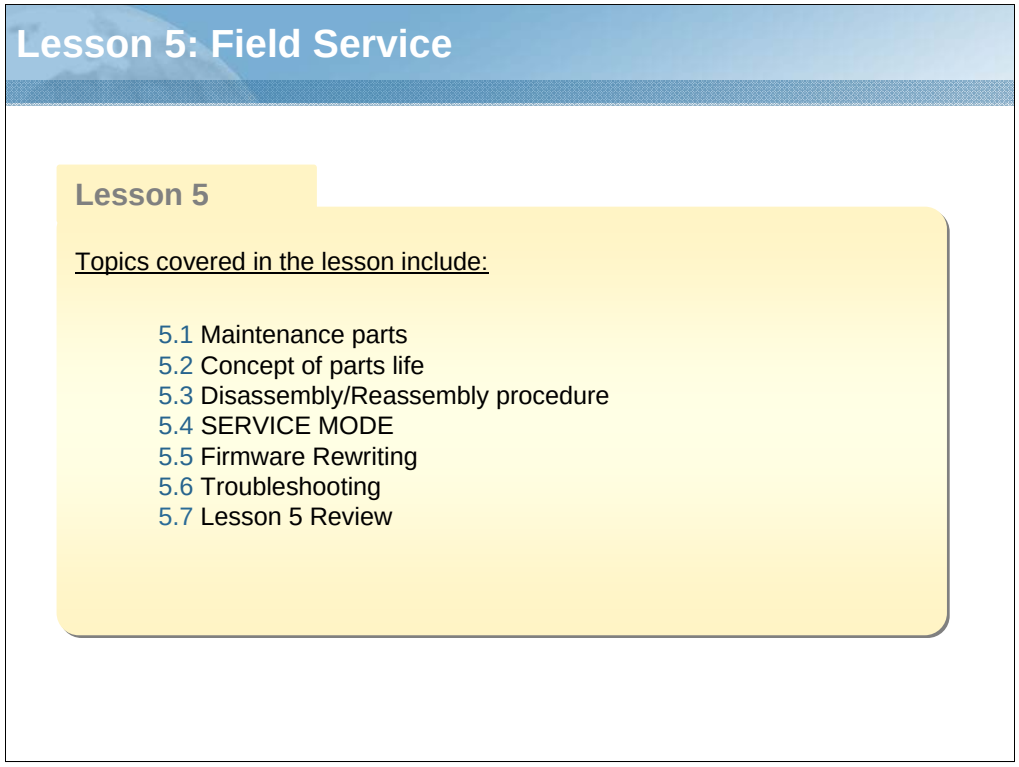
Motor Name	Control	Control Conditions
DC power supply fan motor (FM5)	ON (high speed)	During rotation of the main motor (M1)
	ON (medium speed)	No control
	ON (low speed)	No control
	Stop	Conditions other than those of ON (high speed)

NARRATION: These tables show the function and fan control.

NARRATION: This is the review quiz for this lesson.



NARRATION: In this lesson, you learned about the following items.



NARRATION: The following Field Service Lesson will explain these topics.

5.1 Maintenance parts

❖ Periodical maintenance parts list

Replace with reference to the numeric values displayed on the total counter, the life Counter, or the messages displayed on the control panel.
Maintenance conditions are based on the case of A4 or 8 1/2 x 11, standard mode (2 pages per job) and low power mode OFF.

	Parts name		Parts No.	Qt.	Replacing cycle
Processing section	Developer		-	1	55,000
	Drum		-	1	55,000
	Cleaning blade		A0XX 3618 ##	1	55,000
	Drum charge corona assy		A1XU R701##	1	55,000
	Toner bottle (TN117) *1		-	1	5,000
	Toner bottle (TN116) Toner bottle(TN117H) *1		-	1	11,000
Fusing section	Fusing unit	(220-240V)	A0XX PP6X ##	1	100,000 *1
		(110V)	A0XX PP6Y ##	1	
		(120-127V)	A0XX PP70 ##	1	

*1: Only for China

NARRATION: This table shows the replacement cycle of the components to be replaced periodically.

Maintenance parts

❖ Periodical cleaning parts list

Clean with reference to the numeric values displayed on the total counter, the life counter, or the messages displayed on the control panel.

	Parts name	Cleaning cycle	Description
Processing section	Ds collars	55,000	*1
	Developer scattering prevention plate	55,000	*1
	Drum separator fingers	55,000	*1
Conveyance section	Timing roller	55,000	*1
	Pre-image transfer guide plate	55,000	*1

*1: Total counter value

NARRATION: This is a further description of the main body components to be cleaned periodically.

5.2 Concept of parts life

❖ Life value of consumables and parts

Life specification value means an actual life terminated when prints are made under the conditions as defined in the next section, “Conditions for life specifications values.”

	Parts name	Near life value	Life value	Max. life value
Developer	The distance travelled by the drum is converted to a corresponding number of printed pages of A4 paper at 2P/J.	50,000 *1	55,000 *1	69,000 *1, *3
Drum				
Cleaning blade				
PC drum Charge corona				
Fusing unit	The number of sheets of paper fed out of the copier is counted.	-	100,000 counts *2	-

*1: To check the life count, select [Service Mode] - [COUNTER] - [SUPPLIES COUNTER] - [I/U Life].
*2: To check the life count, select [Service Mode] - [COUNTER] - [PM COUNTER] - [FUSING].
*3: When the count reaches the maximum life value, printing is not allowed.

NARRATION: This is a further description of the main body components to be replaced periodically.

Conditions for life specifications values

Copying type: 2P/J

Paper size: A4 or 8 1/2 x 11

Original density: B/W 6%

5.3 Disassembly/Reassembly procedure

Maintenance Procedures 

Other maintenance 

NARRATION: Click on the links to view the disassembly and reassembly procedures.

5.4 SERVICE MODE

Service Mode

Panel simulation

❖ Starting Procedure

1. Press the **Menu Select** key.

2. Press the following keys in this order.
   Quick Settings, Left, Left, Quick Setting, Left, Right

3. The **SERVICE MODE** menu screen will appear.

❖ Exiting Procedure

Press the Back/Stop/Reset key as many times as it is required to display the initial screen.

❖ Panel simulation

Click on the link and use the panel simulation of bizhub184/164 to check the setting items.

NARRATION: Follow this procedure to enter the Service Mode. Click on the link and use the panel simulation of bizhub184/164 to check the setting items.

TRANSFER output adjustment

	Function
TRANSFER (PLAIN) TRANSFER (RECYCLE) TRANSFER (CARD1) TRANSFER (CARD2)	A. Use • Adjust the image transfer output value for each paper type. • The output value determined by the transfer output control can be adjusted within the range of ± 30 % • To use when the transfer failure occurs.
	B. Procedure • The default setting is 0. -3 to +3 (1step: 10 %)

NARRATION: This is an explanation of the newly added Transfer output adjustment.

SUCTION FAN

	Function
SUCTION FAN	A. Use • To specify the length of time from when a print cycle is completed and until when the suction fan motor stops rotating. • Used when image failure (while line etc.) occurs due to residual ozone that remains around the drum.
	B. Procedure • The default setting is 2 sec. “2 sec”/20 sec/ 60 sec/600 sec NOTE • Even when 20 sec. or more is selected in this setting, a higher priority is given to the shift to sleep mode.

NARRATION: This is an explanation of the Suction fan motor.

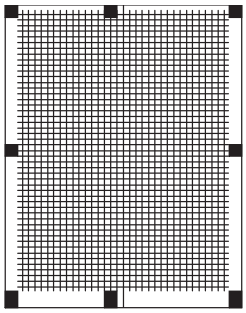
LANGUAGE GROUP

	Function
LANGUAGE GROUP	A. Use • To select the language group applied to the firmware. • To rewrite the firmware so that it can be used for a different marketing area.
	B. Procedure • The default setting varies depending on the marketing area. TYPE 1/TYPE 2/TYPE 5/TYPE 6/TYPE7 • The new setting takes effect after the power switch is turned OFF/ON.

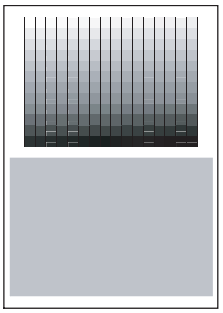
NARRATION: This is an explanation of Language group.

PRN TEST PATTERN

To produce test pattern 1 for image adjustments and test pattern 2 for checking halftone and gradation.
To produce a test pattern, be sure to use **A3 or 11 x 17** sized paper.
Using paper that is smaller than A3 or 11 x 17 may cause a smear on the back side of paper ejected on the output tray. If this problem occurs, feed several sheets of paper through the machine to resolve the problem.



PATTERN 1



PATTERN 2

NARRATION: This is used to produce test pattern 1 for image adjustments and test pattern 2 for checking halftone and gradation.

TONER SUPPLY

	Function
TONER SUPPLY	A. Use • To adjust the set T/C level by replenishing an auxiliary supply of toner when a low ID occurs due to a lowered T/C, after large numbers of prints have been made of originals having a high image density.
	B. Procedure 1. Press the OK key to start the toner supply function. 2. When the toner density returns to normal or a given period of time elapses after the toner supply is started, the machine automatically stops supplying toner.

NARRATION: This is an explanation of toner supply.

SECURITY mode

Security Mode 

❖ Starting Procedure

1. Call the **SERVICE MODE** to the screen.
2. Press the following keys in this order:
   Quick Settings, Left, Right
3. The **SECURITY** mode screen will appear.

❖ Exiting Procedure

Press the **Back/Stop/Reset** key as many times as it is required to display the initial screen.

❖ Functions

Item	Function
TOTAL COUNTER COUNT	To set the calculational procedure of the total counter.
SIZE COUNTER COUNT	To set the size of paper to be counted by the size counter.

NARRATION: Follow this procedure to enter the Security mode.

5.5 Firmware Rewriting

❖ Outline

Two types of firmware rewrite, the controller firmware rewrite and the engine firmware rewrite, are available. Both types of firmware rewrite need connecting the PC to the machine with a USB cable and starting the dedicated updater on the PC.

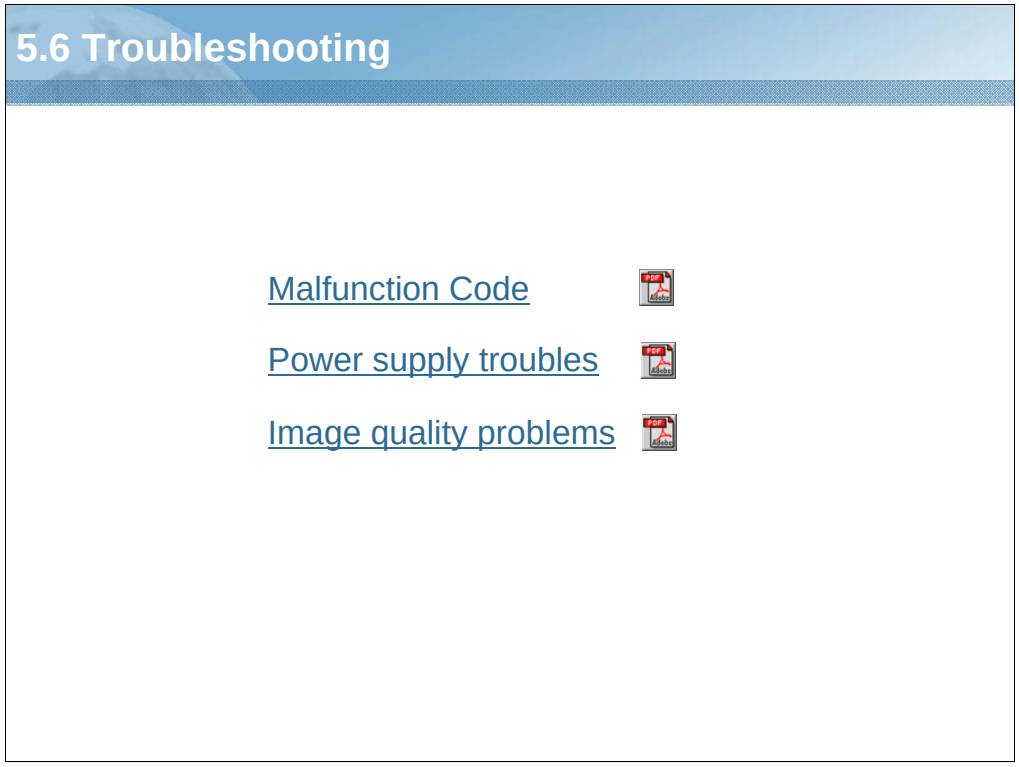
❖ Preparation

• Before rewriting the firmware, install the printer/scanner drivers on the host computer used for the firmware rewrite.
• Before rewriting the firmware, copy the firmware rewriting tool, “UpdateFW.exe” to the host computer used for the firmware rewrite.

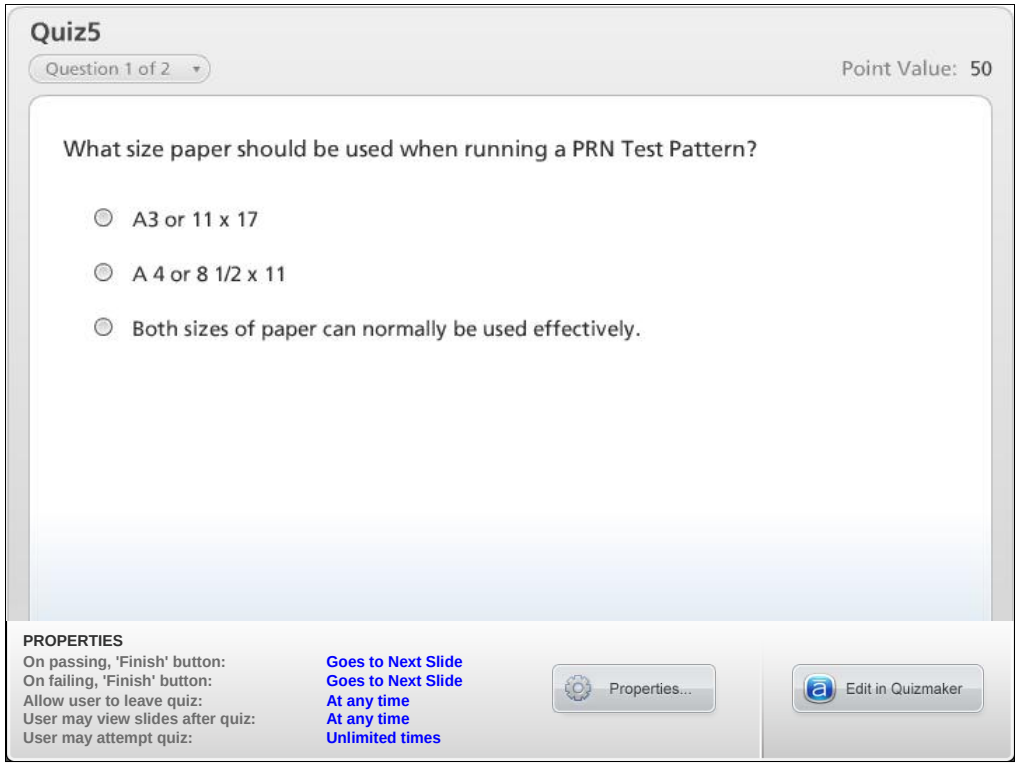
❖ Rewriting method

Service Manual 

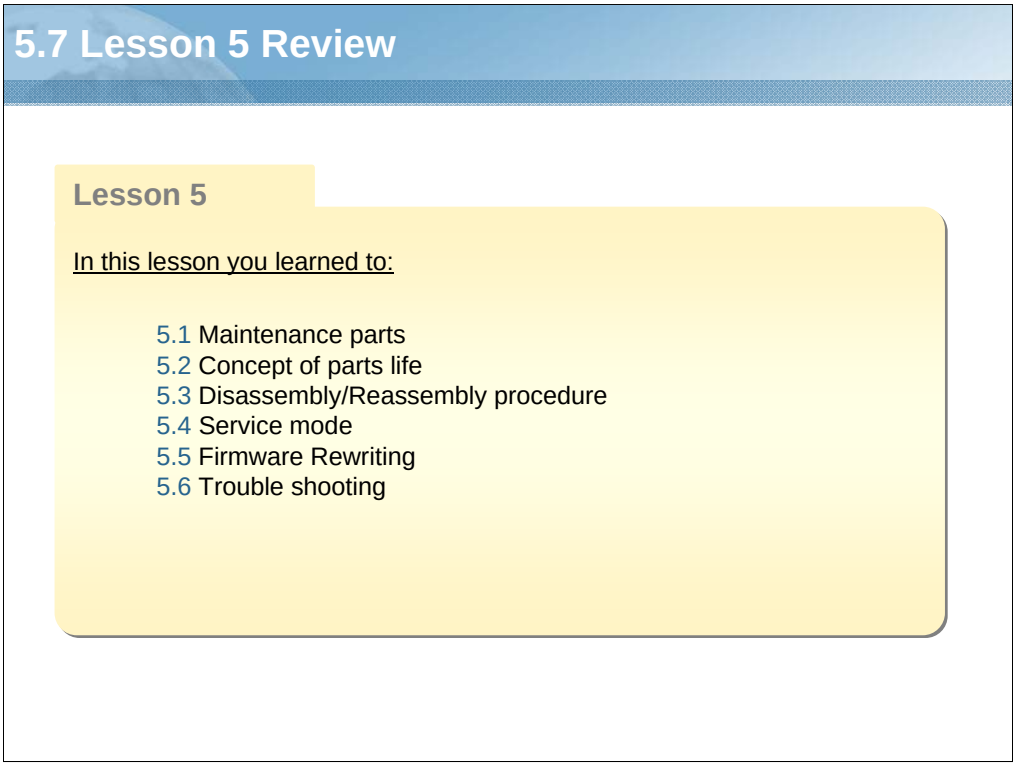
NARRATION: This is an explanation of rewriting firmware.



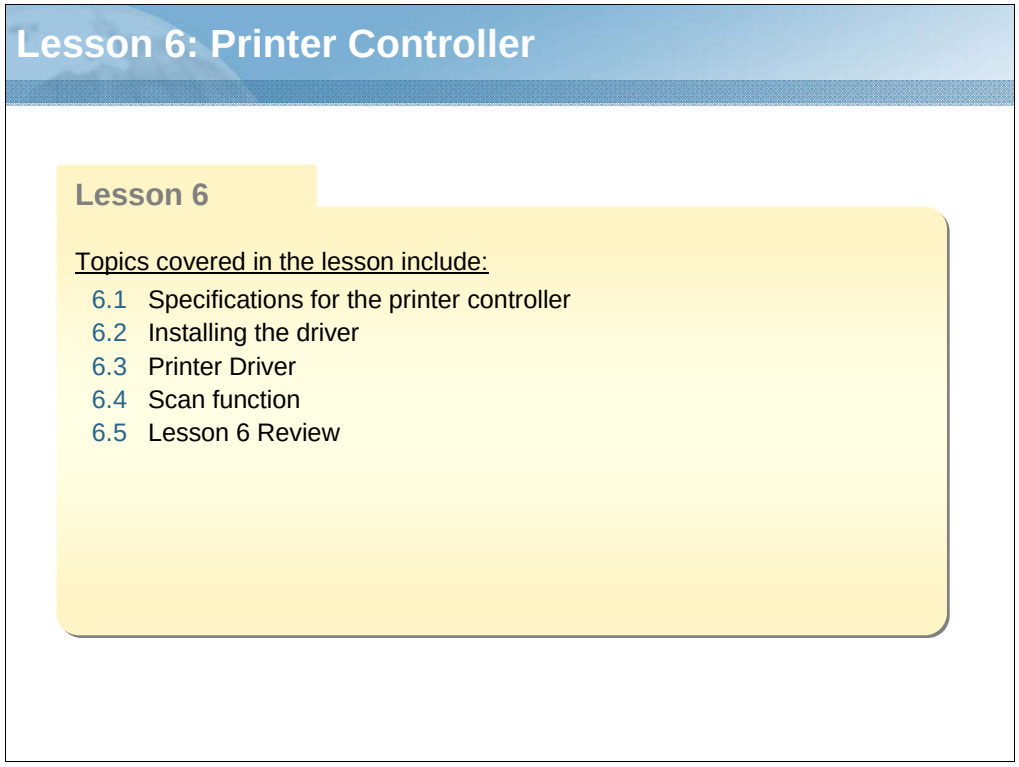
NARRATION: The various troubleshooting procedures are outlined in the attached files.



NARRATION: This is the review quiz for this lesson.



NARRATION: In this lesson, you learned the following items.



NARRATION: The following Printer Controller Lesson will explain these topics.

6.1 Specifications for the printer controller

	bizhubC35
Type	Built-in printer controller
RAM	32 MB (shared with the copier)
Interface	USB2.0/1.1
Printer language	GDI
Print resolution	600 x 600 dpi
Printer fonts	Windows font
Supported OS for printer driver	Windows 2000 Professional (SP4 or later)/2000 Server (SP3 or later) Windows XP Home Edition (SP1 or later)/Professional (SP1 or later) Windows Server 2003, Standard Edition/Enterprise Edition (SP1 or later) Windows Server 2003 R2, Standard Edition/Enterprise Edition Windows XP Professional x64 Edition Windows Server 2003, Standard x64 Edition/Enterprise x64 Edition Windows Server 2003 R2, Standard x64 Edition/Enterprise x64 Edition Windows Vista Business */Enterprise * Windows Vista Home Basic */Home Premium */Ultimate * Windows Server 2008 Standard */Enterprise * Windows 7 Home Premium/Professional/Ultimate * * 32 bits (x86)/64 bits (x64) environment are supported

NOTE) No network connection can be made.

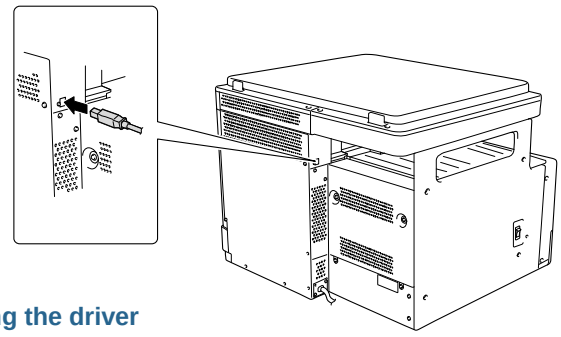
NARRATION: Shown here are the major specifications. Connect this machine to the computer using a USB cable. Note that no network connection can be made.

6.2 Installing the driver

Installation

❖ USB connection

Use the USB port on the back side of the machine for connection with the PC via a cable.



❖ Installing the driver

Install the driver according to the OS.
The scanner driver and printer driver are installed in that order.

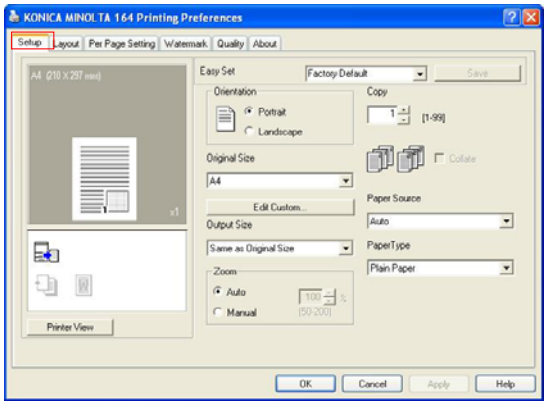
Windows 2000/XP/Server 2003/Vista/Server 2008: Use plug and play.
Windows 7: Use the installer.

NARRATION: Directly connecting the USB2.0 interface on the back side of the machine with the PC will allow the machine to be used as a printer or scanner. Install the scanner driver and printer driver in order by following the wizard. Install the drivers using the installer for Windows 7, and through plug and play for any other OSs. The USB port is used also for upgrading the firmware.

6.3 Printer Driver (1/5)

❖ [Setup] tab

Configure the basic printing functions such as paper size and type as well as output method.



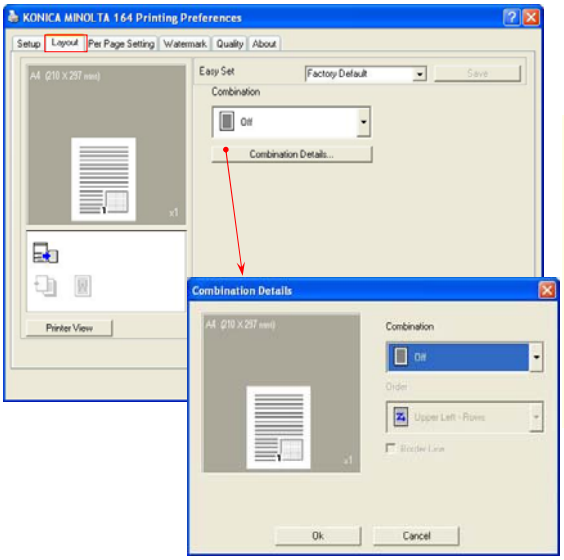
[Orientation] Select the orientation for the original.
[Original Size] Select the paper size of the original.
[Edit Custom...] Frequently used custom sizes can be registered and later called up during paper size setting.
A name can be assigned for the set paper size for registration.
[Output Size] Specify the output paper size.
If it is different from the original size and the zoom is set to [Auto], the output image will be enlarged or reduced to fit the size.
[Zoom] Select an enlarge or reduce ratio.
[Copy] Specify the number of copies to be printed.
[Collate] Select this check box to collate pages sequentially when printing multiple sets of copies.
[Paper source] Select a paper tray to be used.
This function can be selected when the optional Bypass Tray is installed on the machine.
If [Auto] is selected, the paper tray with paper of the size selected in [Original Size] is used.
[Paper type] Select a paper type to be used for printing.

NARRATION: This describes the settings of the printer driver. The driver offers six tabs: [Setup], [Layout], [Per Page Setting], [Watermark], [Quality], and [About], allowing you to make various settings on printing. This slide details the [Setup] tab.

Printer Driver (2/5)

❖ [Layout] tab

Select the number of document pages to be printed on a single sheet of paper.



[Combination] Multi-page originals can be printed on a single sheet of paper.

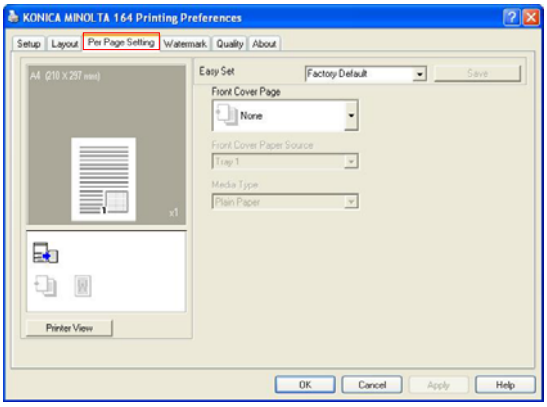
[Combination Details...] Specify the page order and use of the border lines.
[Combination] Select the combination condition. This is the same setting selected in the [Combination] list on the [Layout] tab.
[Order] Select the direction and order of pages to be printed. It can be specified when Nin1 is specified for [Combination].
[Border Line] Select this check box to print an outline
around each page. It can be specified when Nin1 is specified for [Combination].

NARRATION: Here are the [Layout] tab details of bizhub 184/164.

Printer Driver (3/5)

❖ [Per Page Setting] tab

Specify whether or not a front cover page is added.



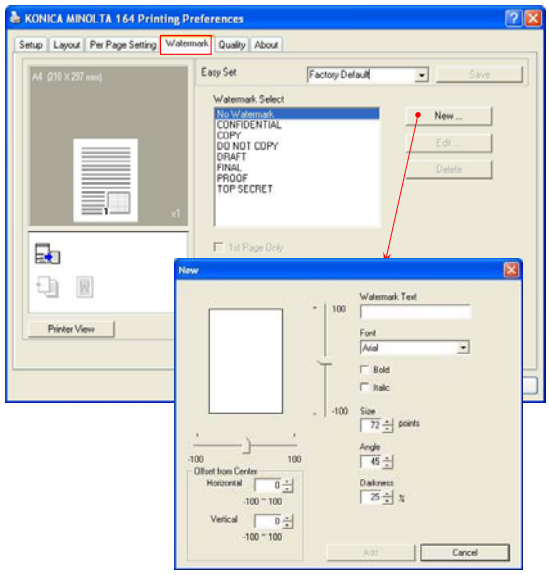
[Front Cover Page] Select to attach a front cover page. You can select whether to print the front cover as a blank page or as a page containing an image on the first page.
[Front Cover Paper Source] Select the paper tray for the front cover sheet. This function can be selected when the optional Bypass Tray is installed on the machine.
[Media Type] Select the type of paper used for the front cover.

NARRATION: Here are the [Per Page Setting] tab details of bizhub 184/164.

Printer Driver (4/5)

❖ [Watermark] tab

Print the document with a watermark (character stamp) overlapped.



[Watermark Select] Select the watermark to be printed.

[New...]/[Edit...] A new watermark can be registered. A registered watermark can also be edited or its settings changed. Up to 32 watermarks can be registered (including [No Watermark]).

[Watermark Text] Enter the text to be printed as the watermark. You can enter up to 20 characters.
[Font] Select the font.
[Bold] Select to use bold text.
[Italic] Select to use italic text.
[Size] Specify the size. A setting between 7 and 300 points can be specified.
[Angle] Specify the angle that the text is printed on the paper.
[Darkness] Specify the density of the text.
[Offset from Center]
Select the vertical and lateral positions.

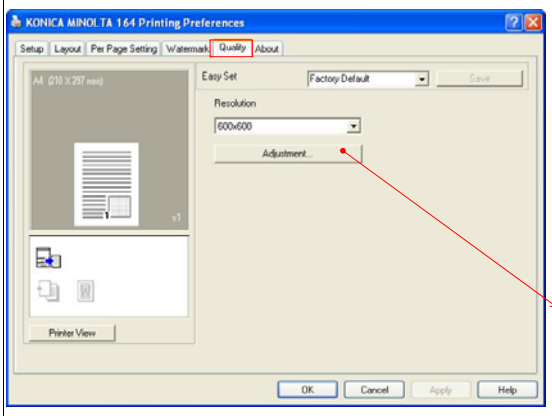
[Delete] Click this button to delete the selected watermark.
[1st Page Only] Select this check box to print the watermark only on the first page.

NARRATION: Here are the [Watermark] tab details of bizhub 184/164.

Printer Driver (5/5)

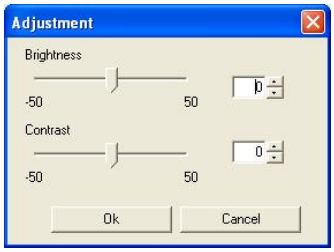
❖ [Quality] tab

Specify the print quality.



[Resolution] Select the print resolution.
- [600 x 600] Originals are printed at 600 x 600 dpi.
- [300 x 600] Originals are printed at 300 x 600 dpi.

[Adjustment] Click this button to adjust the image quality.
- [Brightness] Adjust the brightness of the printed image.
- [Contrast] Adjust the density balance of the printed image.



❖ [About] tab

Displays the printer driver version information.

NARRATION: Here are the [Quality] and [About] tab details of bizhub 184/164.

6.4 Scan function

By operating a TWAIN-compatible application (e.g. Adobe Acrobat 7.0 Professional) from the PC side, the original placed on the original glass can be scanned and data can be loaded in the PC.

This machine also supports the WIA driver installed on Windows as a standard, allowing scanning operations using WIA-compatible applications.

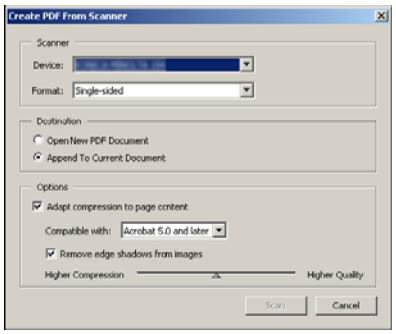
NARRATION: This is an explanation of the scan function.

TWAIN Scanning operation

❖ TWAIN Scanner

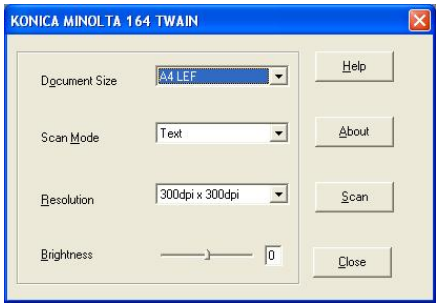
The scanning operation can be performed from TWAIN- compatible applications. The operating procedure varies according to the application used.
As an example, the procedure using Adobe Acrobat 7.0 Professional is described below.

1 Place the document face down on the Original Glass.
2 Start the application on the computer.
3 Click [File].
4 Point to [Create PDF], then click [From Scanner].
5 Select the device from the dialog box, specify the desired settings, and click [Scan].
6 Specify the necessary settings.
7 Click [Scan]. Scanning begins.



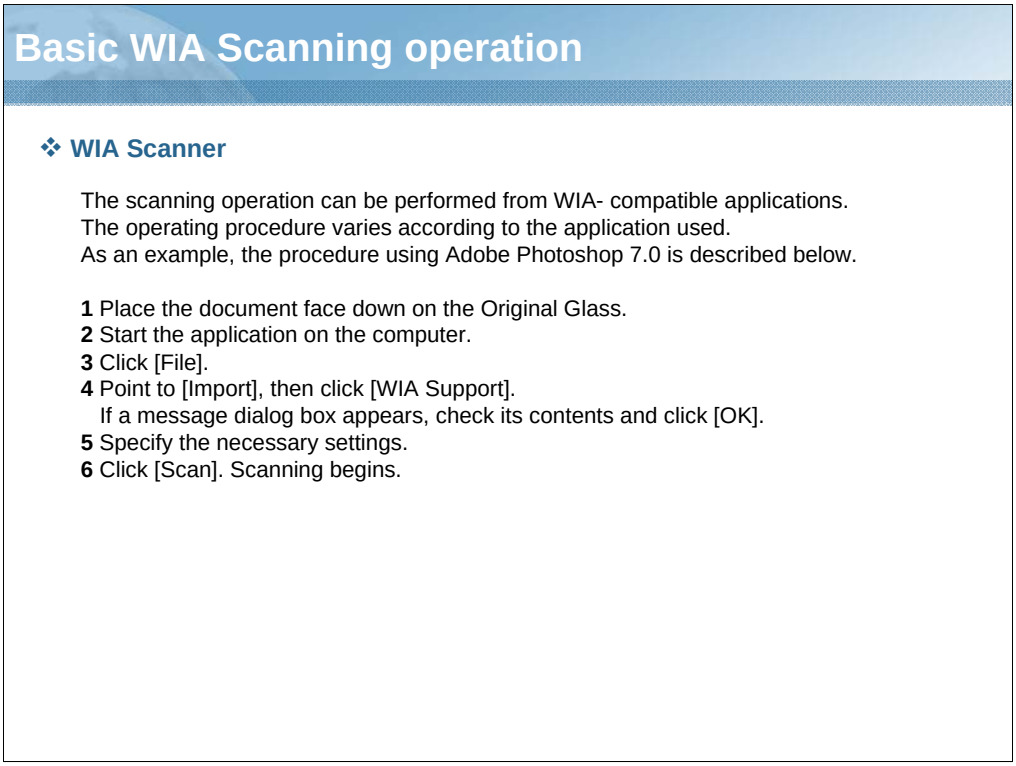
NARRATION: This is the outline of a basic TWAIN scanning operation from a computer application.

TWAIN Scanner

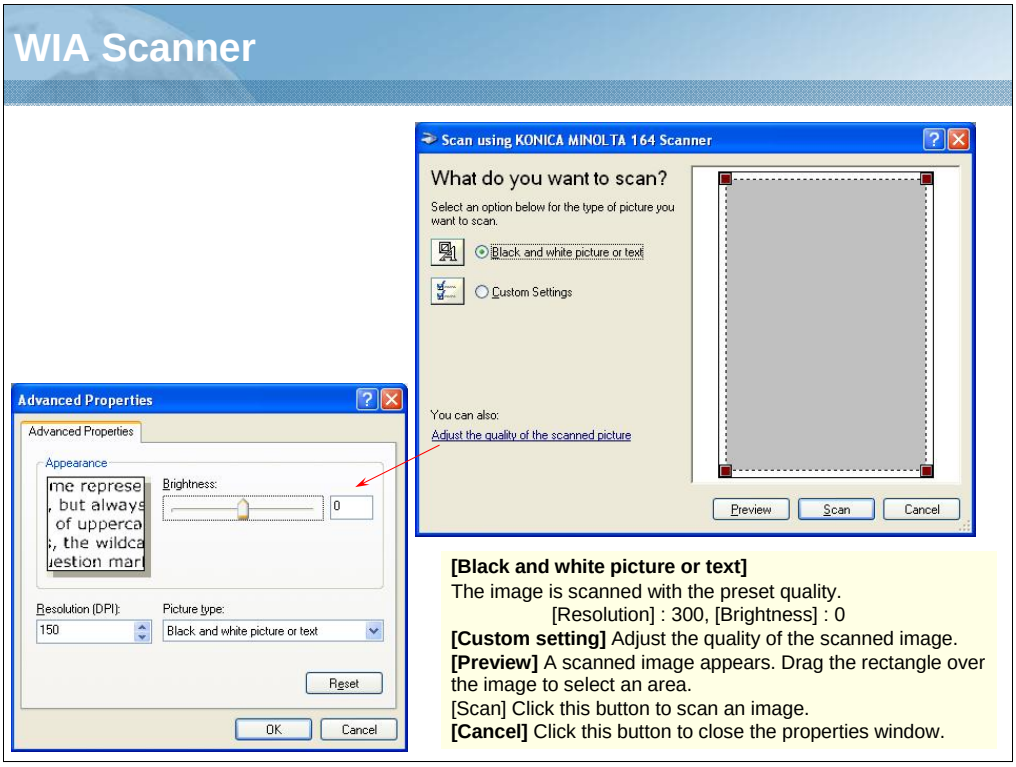


[Document Size]
Select the paper size to be scanned.
[Scan Mode]
[Text] Suitable for common text document.
[Photo] Suitable for common photograph document.
[Resolution]
[150 dpi x 150 dpi] Normal resolution for the standard size character and scan efficiency.
[300 dpi x 300 dpi] Higher resolution for the small character (e.g. newspaper).
[600 dpi x 600 dpi] The highest resolution for image data.
[Brightness]
Adjust the brightness of the image.
[Help]
Click this button to display the help files.
[About]
Click this button to display version information.
[Scan]
Click this button to scan an image.
[Close]
Click this button to close the properties window.

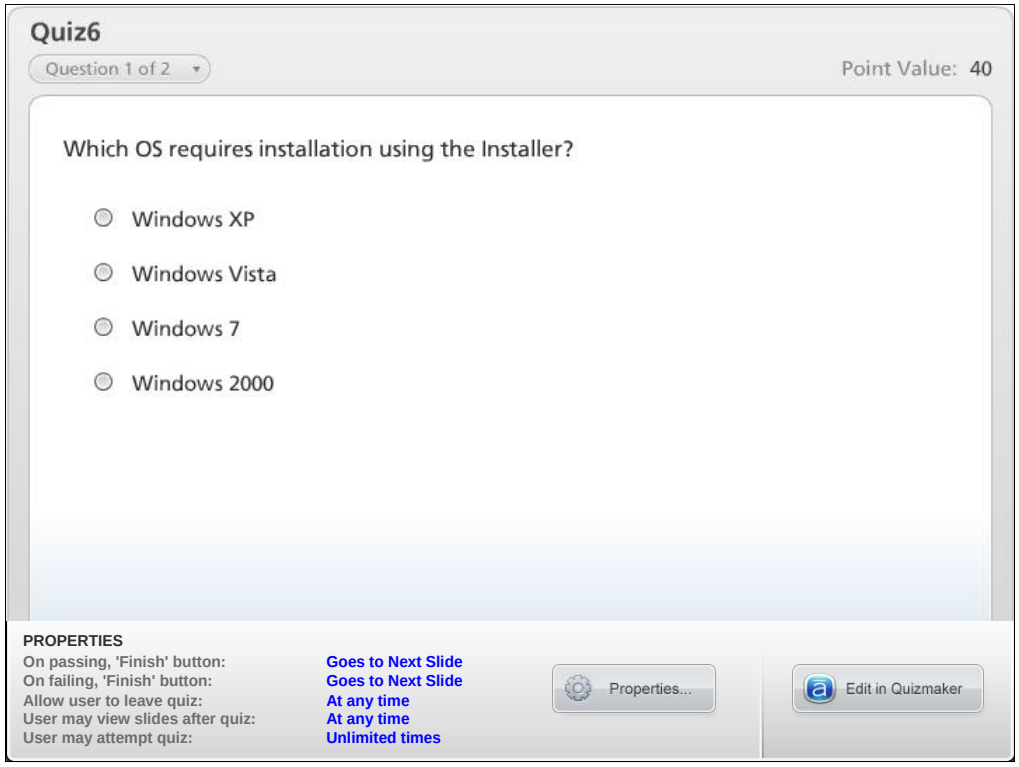
NARRATION: Here are the manual scanning mode settings associated with the TWAIN scanner function.



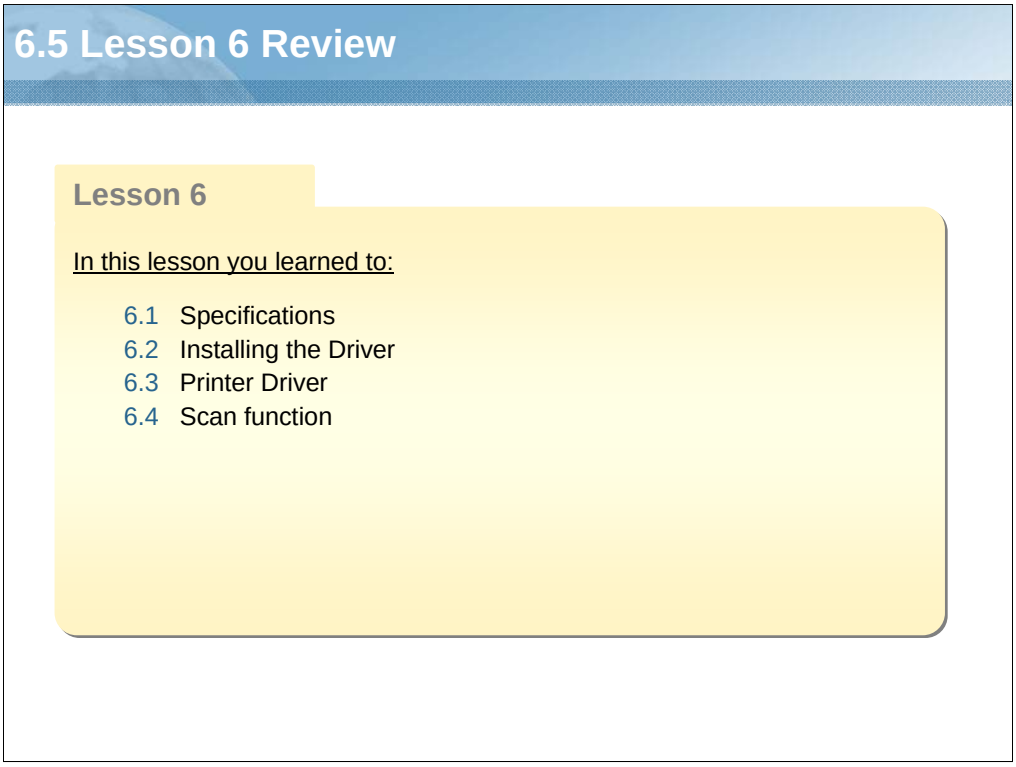
NARRATION: This is the outline of a basic WIA scanning operation from a computer application.



NARRATION: Here are the manual scanning mode settings associated with the WIA scanner function.



NARRATION: This is the review quiz for this lesson.



NARRATION: In this lesson, you learned the following items.

Course Completion

Congratulations! You have completed the **bizhub 184/164** technical training course.

After reviewing this course, you should now have a good understanding of:

- Overall product features and target customers.
- System configurations and specifications.
- Theory of Operation.
- Field service procedures.

NARRATION: Congratulations. You have successfully completed the bizhub 184/164 Technical Training Course. After reviewing this course, you should now have a good understanding of the overall product features and target customers, system configurations and specifications, theory of operation, and field service procedures.