

bizhubPRESS C7000/C7000P/C6000


Technical Training Course

Welcome to the bizhub PRESS C7000/C7000P/C6000 Technical Training Course.
This Course will cover Five Lessons of the bizhub PRESS C7000/C7000P/C6000 Engine Differences.

Option Modules



To download these files, you must have [Adobe Acrobat](#) installed on your computer.

[bizhub PRESS C7000 Workbook \(3.3 mb\)](#) 

[bizhub PRESS C7000 Workbook \(2.6 mb\)](#) 

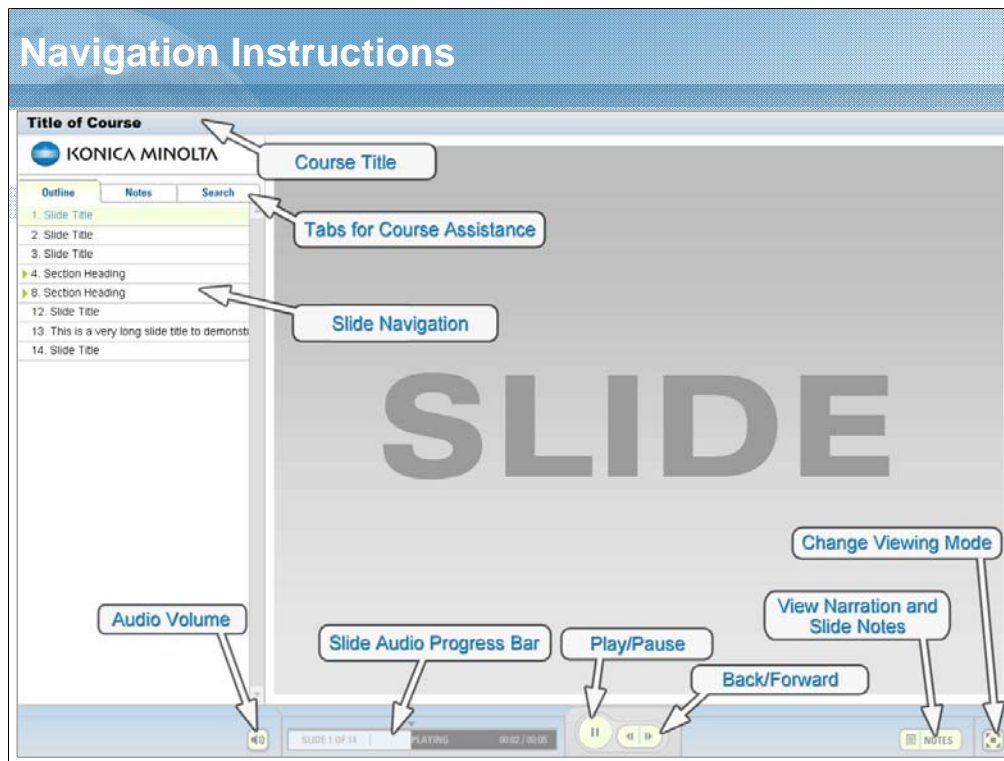


It should take you approximately
60-90 Minutes to complete this course.



KONICA MINOLTA

NARRATION: Welcome to the bizhub PRESS C7000/C7000P/C6000 Technical Training Course. This WBT Course will cover Five Lessons covering the bizhub PRESS C7000/C7000P/C6000 Option Differences. Please take the test after you have completed this course.



Narration:

These are the navigation instructions.

Course Objectives



In this course you should be able to:

1. RU-509/HM-102
2. FS-531
3. FS-512
4. PK-512/513
5. SD-506

NARRATION:

In this course you should be able to understand the differences and changes made to the C7000 Options.

Lesson 1: RU-509/HM-102

Topics covered in the Lesson include:

- 1.1 Main Differences
- 1.2 Overall Composition
- 1.3 Bypass Conveyance Section
- 1.4 Entrance Conveyance Section
- 1.5 De-Curler Section
- 1.6 Output Paper Density Detection Section
- 1.7 Paper Exit Section
- 1.8 Humidification Section
- 1.9 Conveyance Control
- 1.10 Other Controls
- 1.11 Lesson Review

NARRATION:

The following topics will be covered in this lesson.

1.1 Main Differences

	RU-509/HM-102	RU-508/HM-101	Details
Weight	RU-509: 60kg HM-102: 30kg	RU-508: 80kg HM-101: 10kg	Unit Configuration of the Option was changed
Bypass Route Conveyance	Provided	Not provided	
Paper Exit Mechanism	Without Reverse/Exit	With Reverse/Exit	Paper is reversed in the Main Body
Humidifier Option (HM)	Whole Humidification Section for HM-102	Water Feed Tank Section + Humidification Roller Mechanism for HM-101	Supply Unit of the Option was changed
Humidification Section Pressure Release Control	2 Positions	3 Positions	
Conveyance Control	Exit Line Speed of the Main Body = 6	Exit Line Speed of the Main Body = 3	

NARRATION:

The bypass route conveyance, paper exit mechanism, supply unit of the humidifier option, pressure release control of the humidification section, and conveyance control are mainly changed.

1.2 Overall Composition

- Purpose of the RU-509/HM-102
- Product Specifications
- Unit Configuration
- Paper Path

NARRATION:

The following topics will be covered in this Section.

Purpose of the RU-509/HM-102 (1/5)

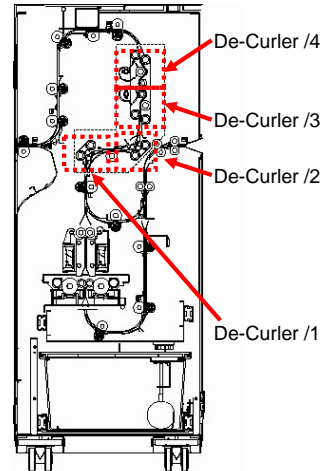
❖ De-Curler Function

Purpose

- To correct various curls for each Paper Size/Paper Weight/Paper Type/Curl Direction

Method

- De-Curling by the Belts and Rollers (Up to 7 Flexions of the paper are performed)
- De-Curlers /1 and /2 are effective for Thin Paper
- De-Curlers /3 and /4 are effective for Thick Paper (Un-stiffen Thick Paper by 5 flexions: Flexion Strength can be changed)



NARRATION:

The De-Curler Section is provided to correct various curls of each Paper Size, Paper Weight, Paper Type and Curl Direction.

There are four different De-Curler Sections.

De-Curlers /1 and /2 are more effective for Thin Paper and they each perform the Flexion of the paper just once.

While De-Curlers /3 and /4 are more effective for Thick Paper in where they perform 5 Flexions of the paper and the amount of Flexion Strength can be varied.

Purpose of the RU-509/HM-102 (2/5)

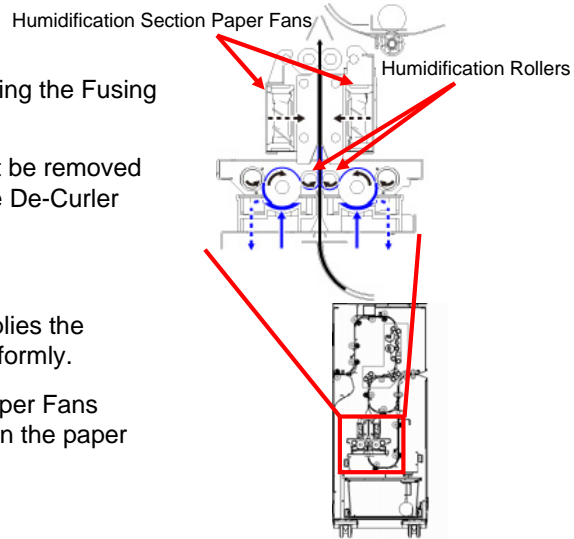
❖ Humidifier Function (HM-102)

Purpose

- Humidifies the paper dried during the Fusing Process to remove any curl.
- It is used when the curl cannot be removed sufficiently by the flexion in the De-Curler Section.

Method/Effect

- The Humidification Rollers applies the humidification to the paper uniformly.
- The Humidification Section Paper Fans remove any water remaining on the paper surface.
- More effective for thin paper.
- Not effective for Coated/Color Paper.



NARRATION:

The Humidification Section is provided for the times when the curl cannot be removed sufficiently by the flexion in the De-Curler Section.

The Humidification Rollers applies humidification to the paper uniformly and the Humidification Section Paper Fans remove any water remaining on the paper surface.

This humidification process is more effective for Thin Paper and less effective for Thick Paper and is not effective for Coated or Color Paper.

Purpose of the RU-509/HM-102 (3/5)

❖ Humidifier Function (HM-102) – Neutralization/Heat Removal

Effect

- Neutralizes the Static Electricity on the paper
→ Prevents the Electrostatic Adsorption of the paper

- Removes heat from the paper
→ Prevents the toner from melting on the Paper Exit Tray
→ Prevents the adsorption of paper

NARRATION:

The HM-102 also is used for Static Neutralization and Heat Removal from the paper.

Purpose of the RU-509/HM-102 (4/5)

❖ Line Speed Control

- Adjusts the Line Speed in the RU to move the paper to the succeeding device

Main Body Paper Exit Line Speed is 1000mm/s, 315mm/s, 300mm/s, 225mm/s, 208mm/s or 150mm/s



RU-509



Succeeding Device Line Speed is 1000 mm/s (400 mm/s for punching)

NARRATION:

In the RU, the Line Speed is increased from the Main Body Paper Exit Line Speed (1000mm/s (for reverse/exit), 315mm/s, 300mm/s, 225mm/s, 208mm/s or 150mm/s) to up to 1000 mm/s to convey the paper to the succeeding device.

However, if a Punch Operation is being performed by the FS-612, the paper will be exited at 400 mm/s.

Purpose of the RU-509/HM-102 (5/5)

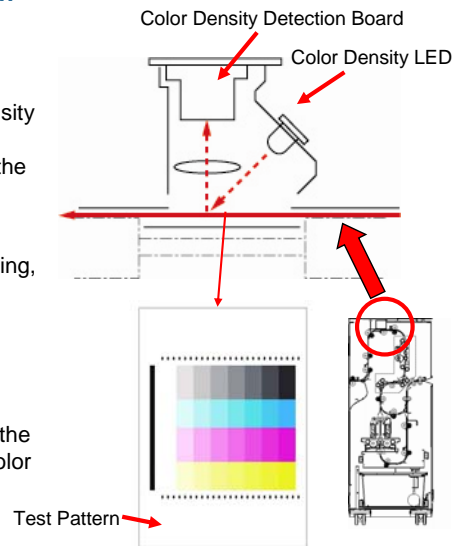
❖ Output Paper Density Detection Function

Purpose

- Measures the color density with the Color Density Sensor in the RU-509
→ Feeds it back to the gamma Correction of the Image Stabilization Control.
- Uses a Test Pattern actually outputted
→ Correction based on the 2nd Transfer, Fusing, and the Characteristics of the Paper.

Method

- Measures the density of the Test Pattern with the Color Density Sensor (Color Density LED + Color Density Detection Board) for each color.



NARRATION:

The Output Paper Density Detection Function is provided to perform the Gradation Correction corresponding to the color gaps between machines in the 2nd Transfer and Fusing, or the Paper Characteristics.

It prints an image on the paper to be used, (test pattern of the density patch), and detects its density and feeds it back to the Main Body for executing gamma Correction.

Product Specifications / Unit Configuration / Paper Path

❖ Product Specifications

[RU-509](#) 

[HM-102](#) 

❖ [Unit Configuration](#)

❖ Paper Path

[Straight Conveyance/De-Curler Conveyance/Humidification Conveyance Mode](#) 

NARRATION:

For details of the product specifications, unit configuration and paper path, refer to the linked PDF files.

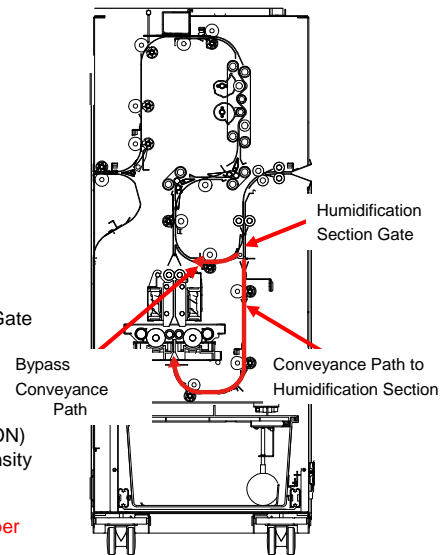
1.3 Bypass Route Conveyance

❖ Change of the Conveyance Path per Mode

Mode	RU-509/HM-102	RU-508/HM-101
Humidification ON Mode	Humidification Section Conveyance Path	Humidification Section Conveyance Path
Humidification OFF Mode	Bypass Route	
Output Paper Density Detection Mode		

- In the case of the RU-509, the Humidification Section Gate Solenoid (SD1) is driven depending on the mode to switch the Conveyance Route.
- SD1:
ON → To the Humidification Section (Humidification ON)
OFF → To the Bypass Route (Humidification OFF/Density Detection)

* In the case of RU-508, SD1 is turned ON to convey paper to the Humidification Section regardless of the mode .



NARRATION:



For the RU-508 that is connected to the C8000, SD1 is turned ON regardless of the mode and all paper is conveyed to the humidification section to keep the long conveyance path for the WAX unevenness prevention.

When the RU-509 is connected to the C7000, paper is conveyed to the humidification section only in humidification ON mode. Therefore, The humidification section gate solenoid (SD1) is switched depending on the mode.

1.4 Entrance Conveyance Section (1/3)

❖ [Configuration](#) 

❖ Drive

- [Conveyance Drive](#) 
- [Humidification Section Gate Drive](#) 

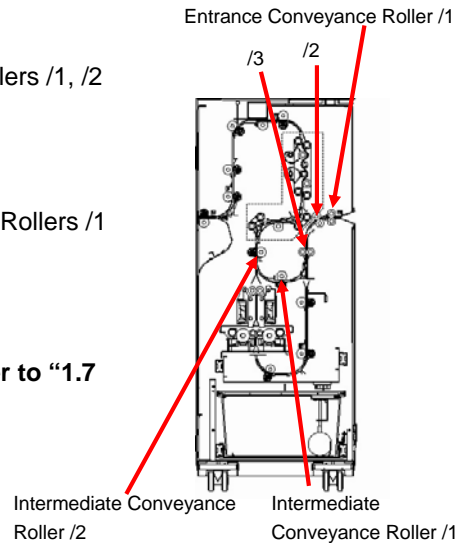
NARRATION:

For details of the configuration and drive of the entrance conveyance section, refer to the linked PDF files.

1.4 Entrance Conveyance Section (2/3)

❖ Entrance Conveyance Control

- Entrance Conveyance Motor (M1)
→ Drives the Entrance Conveyance Rollers /1, /2 and /3
- Intermediate Conveyance Motor (M2)
→ Drives the Intermediate Conveyance Rollers /1 and /2
- For details of the M1/M2 controls, refer to “1.7 Conveyance Control ”



NARRATION:

Conveyance is performed by the Entrance Conveyance Motor (M1), and the Intermediate Conveyance Motor (M2).

The Entrance Conveyance Rollers 1, 2 and 3 are driven by the M1 via gears, and a belt.

While the Entrance Conveyance Roller 3 has a one-way clutch, it makes up the Conveyance Speed Gap between the Humidification Section Entrance Conveyance Motors M7 and M1.

The Intermediate Conveyance Rollers 1 and 2 are driven by M2, via gears and a belt.

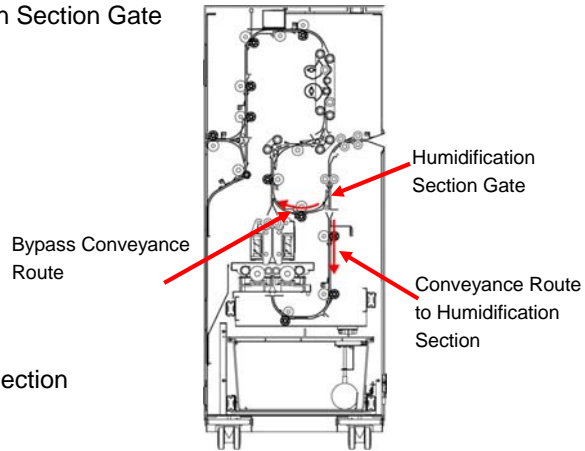
Last, the Intermediate Conveyance Roller 2 receives the paper conveyed from the Humidification Section or Bypass route, and conveys it to the De-Curler Section.

1.4 Entrance Conveyance Section (3/3)

❖ Humidification Section Gate Control

- Humidification Section Gate Solenoid (SD1)
 - Drives the Humidification Section Gate
 - Switches the route

- SD1:
 - OFF → Bypass
 - ON → To Humidification Section



NARRATION:

The Humidification Section Gate Solenoid (SD1) drives the Humidification Section Gate. The gate is set to the Bypass Route when it is turned OFF, and is set to the Conveyance Route to the Humidification Section when it is turned on.

1.5 De-Curler Section

- Configuration/Drive
- De-Curler Section Outline
- De-Curler /1, /2
- De-Curler /3
- De-Curler /4
- Paper Feed Pattern




NARRATION:

The following topics will be covered in this Section.

Configuration/Drive

❖ [Configuration](#)

❖ Drive

- [De-curler Section Conveyance Drive](#) 
- [De-Curler Gates /1 and /2 Drive](#) 
- [De-Curlers /3 and /4 Pressure Drive](#) 

NARRATION:

For details of the configuration and the drives of the de-curler section, refer to the linked PDF files.

De-Curler Section Outline

- **2 types of De-Curler Processes at 4 places**

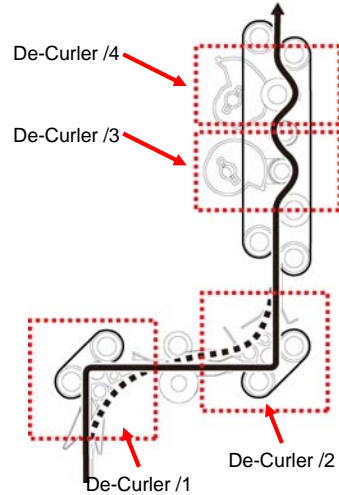
- **De-Curler /1, /2**

- Mainly removes Curl on Thin Papers

- **De-Curler /3, /4**

- Mainly removes Curl on Thick Papers

- Performs 5 zigzags of Variable Flexion



NARRATION:

The De-Curler Section consists of 2 types of De-Curler Processes at 4 different places.

De-Curlers 1 and 2 correct the Convex-Concave Curl with the De-Curler Roller curvature of R5, and the De-Curler Belt, and they are mainly used to remove curl on Thin Papers.

When not performing De-Curl, papers are fed to the Bypass Route.

De-Curlers 3 and 4 correct the Convex-Concave Curl, through the Zigzag Route with the use of Variable Flexion Strength, by changing the shapes of Right and Left De-Curler Belts, which are changed by the De-Curler Rollers 3 and 4, and is used mainly to remove curl when using Thick Paper.

De-Curler /1, /2

- **De-Curler /1**

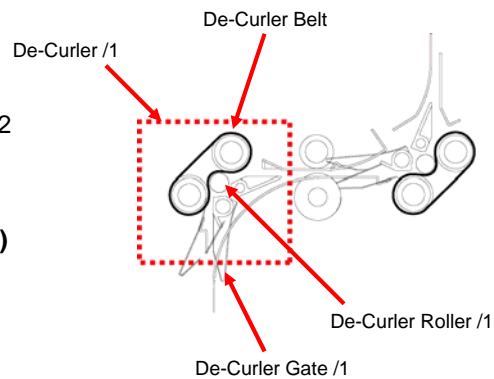
: De-Curler Roller /1 + De-Curler Belt /1
→ Corrects Convex Curl

- **De-Curler /2**

: De-Curler Roller /2 + De-Curler Belt /2
→ Corrects Concave Curl

- **De-Curler Solenoid /1 (SD2), /2 (SD3)**

→ De-Curler Gates /1 and /2
OFF → De-Curler Route
ON → Bypass Route



NARRATION:

De-Curler 1 corrects the Convex Curl with the De-Curler Roller 1, and the De-Curler Belt 1, while the De-Curler 2 corrects the Concave Curl with the De-Curler Roller 2 and the De-Curler Belt 2.

When De-Curler 1 and 2 are not used, the De-curler Solenoids 1 (SD2) and 2 (SD3) drive the De-Curler Gate 1 and 2 and switch to the Bypass Route.

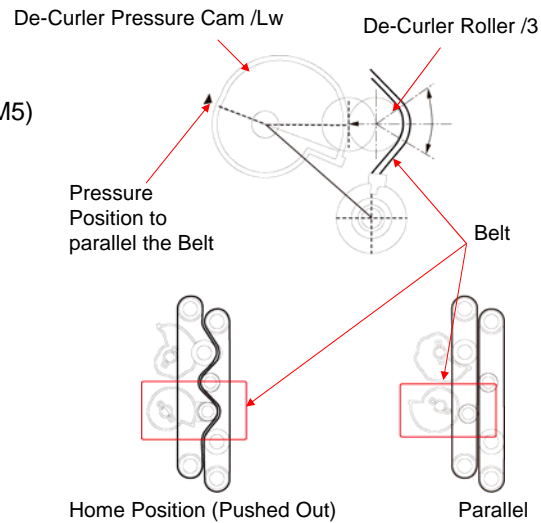
De-Curler /3

- **Switching the Flexion Pattern**

: De-Curler Pressure Motor /Lw (M5)

+ De-Curler Pressure Cam /Lw

→ moves the De-Curler Roller /3



NARRATION:

The Lower De-Curler Pressure Motor (M5) presses the De-Curler Roller /3 via the Lower De-Curler Pressure Cam and the Lower De-Curler Pressure Home Sensor (PS5) detects the Home Position.

There are 2 Flexion Patterns; the Home Position (Pushed Out) and the belts being parallel to each other.

De-Curler /4

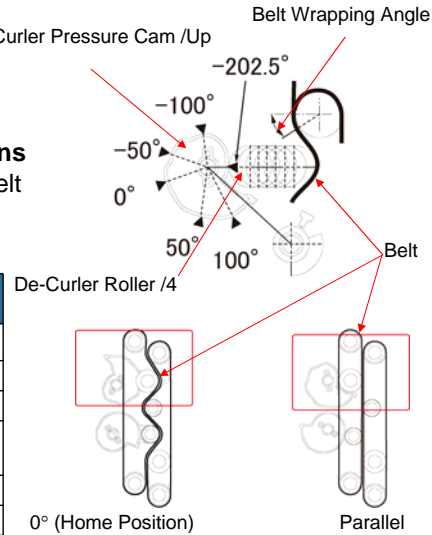
- **Switching the Flexion Pattern**

: De-Curler Pressure Motor /Up (M6)
 + De-Curler Pressure Cam /Up
 → Moves the De-Curler Roller /4

- **Switches between 6 Pushed Out Positions**

→ Correction Intensity is decided by the Belt Wrapping Angle

Angle of De-Curler Pressure Cam /Up	Belt Wrap Angle
-202.5°	0° (Parallel)
-100°	15°
-50°	22.5°
0°	30° (Home Position)
50°	37.5°
100°	45°



NARRATION:

The Upper De-curler Pressure Motor (M6), presses the De-Curler Roller 4, and is driven by the Upper De-Curler Pressure Cam. The Upper De-Curler Pressure Home Sensor (PS6) detects the Home Position.

The Belt Exit Wrap Angle of the Upper Belt Roller changes according to the Pressure Position of the De-Curler Roller 4, and has the following 6 patterns;

0 degrees,
 15 degrees,
 22.5 degrees,
 30 degrees,
 37.5 degrees, and
 45 degrees.

When the Belt Exit Wrap Angle is at 30 degrees, the Belt is at the Home Position.

This Wrap Angle of 30 degrees, is the angle that paper exits from the De-Curl Section keeping the correction effect of the De-Curler 1 and 2.

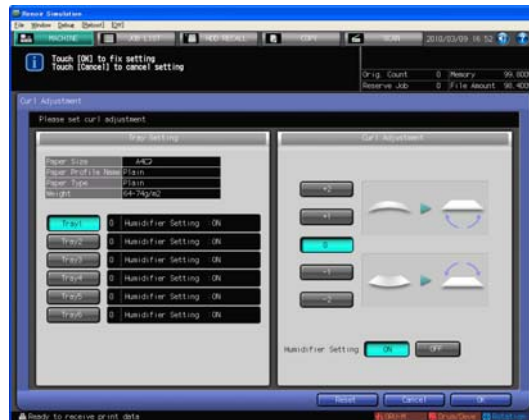
The Belt is parallel when the Belt Exit Wrap Angle is 0 degrees, and the Pressing Position of the Upper De-Curler Pressure Cam is -202.5 degrees.

Paper Feed Pattern (1/2)

- **Select the Paper Feed Pattern in the "Curl Adjustment Screen" on the Operation Panel.**

Set to "0"
→ Default Mode

Set to "+2" "+1" "-1" "-2"
→ Individual Setting Mode



NARRATION:

The method to correct the curl differs depending on the Paper Size, Type, and Weight.

The Paper Feed Patterns have 2 modes;

Default Mode

and Individual Setting Mode.

When "0" is selected on the "Curl Adjustment Screen" of the Operation Panel, the Paper Feed Pattern of the Default Mode is used.

Paper Feed Pattern (2/2)

❖ Default Mode

HM	Size	Weight (g/m²)	Humidification	De-Curler			
				/1	/2	/3	/4
Not Provided	All Sizes	50 to 162	X	O	O	Press	30°
		163 to 300	X	X	X	Press	30 °
		301 to 350	X	X	X	Press	30 °
Provided		50 to 162	O*1	O	O	Press	30 °
		163 to 300	O*1	X	X	Press	30 °
		301 to 350	O*1	X	X	Press	30 °

*1 No Humidification for Coated/Color Paper

[Individual Setting Mode](#)



NARRATION:

“O” in the chart refers to the use of the function and “X” shows the non-use of the function.

The De-Curlers /1 and /2 which adjust with a small curvature are effective for Thin Paper, while De-Curlers /3 and /4 adjust to the Exit Wrap Angle after flexing concavely and convexly several times, are effective for Thick Paper.

1.6 Output Paper Density Detection Section

- Configuration/Drive
- Density Detection Mechanism
- Shutter Mechanism
- Control
- Data Flow

NARRATION:

The following topics will be covered in this Section.

Configuration/Drive

❖ [Configuration](#) 

❖ Drive

▪ [Conveyance Drive](#) 

▪ [Shutter Drive](#) 

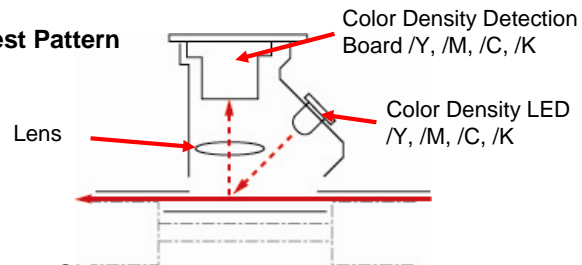
NARRATION:

For the details of the configuration and the drive of the output paper density detection section, refer to the linked PDF files.

Density Detection Mechanism

- **Color Density LED /Y, /M, /C, /K + Color Density Detection Board /Y, /M, /C, /K**

→ **Density Measurement of Test Pattern**



- **Number of Test Pattern Output Sheets**

Size	Number of Patches	Number of Output Sheets
Large	32	3
Middle	32	4
Small	32	6

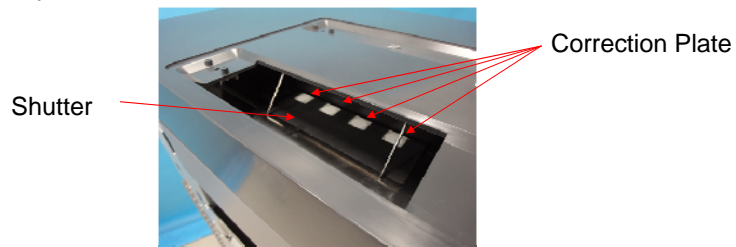
* Unavailable for papers smaller than the Sensor Scanning Area

NARRATION:

LED Light is projected from the Yellow, Magenta, Cyan, and Black Color Density LEDs to the Printed Test Pattern, the reflected light is viewed with the lens, and the Color Density is measured by the Color Yellow, Magenta, Cyan and Black Color Density Detection Boards. The number of the Output Test Patterns differs depending on the paper size being processed.

Shutter Mechanism

- **Shutter Mechanism is provided**
- **Color Density LEDs and Color Density Detection Boards are protected from dirt such as paper dust**
- **Open/Close is performed by the Shutter Solenoid (SD5)**
ON → Open
OFF → Close
- **Correction Plate on the Shutter adjusts Light Volume of LEDs**
→ Performed once every when turning ON Power and before measuring the Color Density



NARRATION:

A Shutter Mechanism is provided to protect the Color Density LEDs, and the Color Density Detection Boards, from dirt, such as paper dust.

The Correction Plate on the Shutter adjusts the Light Volume of the LEDs when turning on the Power, and before measuring the Color Density.

Control (1/2)

❖ When turning ON Power and when resuming after a Jam

Set Default Value of the LED Voltage

- Color Density LEDs /Y (CDLEDY), /M (CDLEDM), /C (CDLEDC), /K (CDLEDK) turn ON



- Correction Plate on Shutter adjusts Light Volume of the LEDs



- Used as Default Value of the LED Voltage Adjustment for measuring Color Density

NARRATION:






During the Initial Operation, the Color Density LEDs turn on.

Then, light from the LEDs is projected to the Correction Plate, (White Reference Plate), of the Shutter, so that the Output Values of the LEDs is adjusted to the specified value.

This LED Voltage Value is then registered, and used as the Initial Value of the LED Voltage Adjustment, when measuring the Color Density.

Control (2/2)

❖ When Measuring the Color Density

- Color Density LED /Y (CDLEDY), /M (CDLEDM), /C (CDLEDC), /K (CDLEDK) turn ON with Default Value
- 
- Correction Plate on Shutter adjusts Light Volume of the LEDs
- 
- Shutter Solenoid (SD5) turns ON → Opens Shutter
- 
- CDLEDY, CDLEDM, CDLEDC, CDLEDK turn ON for each patch
→ Density Measurement with Color Density Detection Board /Y (CDDBY), /M (CDDBM), /C (CDDBC), /K (CDDBK)
- 
- Sending YMCK Measurement Data of 1st Test Pattern to the Main Body → Measurements for the number of papers is then repeated.
- 
- SD5 turns OFF when all operations have completed → Closes Shutter

NARRATION:

When the Paper Feed Operation starts for paper, on which the Test Pattern, (YMCK Density Patches), is printed, all of the Color Density LEDs turn on, with the LED Voltage registered at the Initial Operation Values.

All the Sensors of the Color Density Detection Boards measure the Correction Plate of the Shutter, and correct the LED Voltages.

After a period of time, after the De-Curler Entrance Sensor, (PS2) detects the Leading Edge of the printed Test Pattern, and turns on, the Shutter Solenoid, (SD5) turns on, and opens the Shutter.

After a period of time after the Color Density Detection Timing Sensor, (PS3) detects the Leading Edge of the printed Test Pattern, and turns on, the LEDs turn on.

When the Cyan Density Detection Board detects the Trailing Edge of the Start Line printed on the Leading Edge of the Test Pattern, the LEDs turn OFF , and after a period of time, the LEDs turn back on again.

Then the LEDs turn OFF when each sensor measures the Y M C K Color Patches, and finishes measuring the 1st Patch. It then repeats measuring the test pattern for the specified number of patches according to the paper size.

After the measurement, the Y M C K Measured Data of the 1st sheet of the Test Patterns is sent to the Main Body, then the measurement is repeated for a number of times according to the paper size, and then SD5 turns OFF.

Data Flow

❖ Types of Data

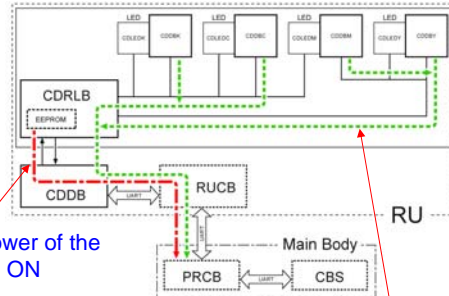
- Default Chart Correction Data
- User Setting Chart Correction Data
- Current Sensor Value

❖ Data Flow

- **Turns ON Power of the Main Body**
→ Default Chart Correction Data in the RU is sent to the Main Body
- **When registering the Paper Category and executing the correction**
→ Output Paper Density Sensor Value is sent to the Main Body

When the Power of the Main Body is ON

When registering the Paper Category and when executing the adjustment



NARRATION:

There are 3 types of data related to the Output Paper Density Detection.

First, the Default Chart Correction Data, in which the Data is registered in the Production Process, using the Standard Color Chart Paper.

Second, the User Setting Chart Correction Data, in which it is the measurement value registered on the "Register Paper Category Screen" and has 2 types; the Output Paper Density Sensor Value and the Color Measurement Value.

These values are stored in the Non-Volatile Memory of the Main Body.

The Output Paper Density Sensor Value is the value of the Test Pattern, (YMCK Density Patches), that is printed when registering the Paper Category, and was measured by the Color Density Detection Boards of the RU, and is stored in the Non-Volatile Memory of the Main Body.

The Color Measurement Value, is the value which is obtained by measuring the Test Pattern that is printed when registering the Paper Category with the Color Measurement, and is registered in the Non-Volatile Memory of the Main Body, by using the USB Connection.

Third, the Current Sensor Value is the value of the Test Pattern that is printed when correcting the Output Paper Density measured by the Color Density Detection Boards of the RU, and is sent from the RU, to the Main Body when the measuring is completed.

When turning on the Main Body, the Default Chart Correction Data is sent from the EEPROM of the RU to the Main Body.

1.7 Paper Exit Section (1/3)

❖ [Configuration](#) 

❖ Drive

▪ [Paper Exit Conveyance Drive](#) 

NARRATION:

For the configuration and the drive of the Paper Exit Section, refer to the linked PDF files.

1.7 Paper Exit Section (2/3)

❖ Elimination of the Reverse/Exit Mechanism

RU-508

- Reverse/Exit Mechanism is not provided in the C8000
→ Reverse/Exit Mechanism is provided in the RU

RU-509

- Reverse/Exit Mechanism is provided in the C7000
→ Reverse/Exit Mechanism provided in the RU was eliminated

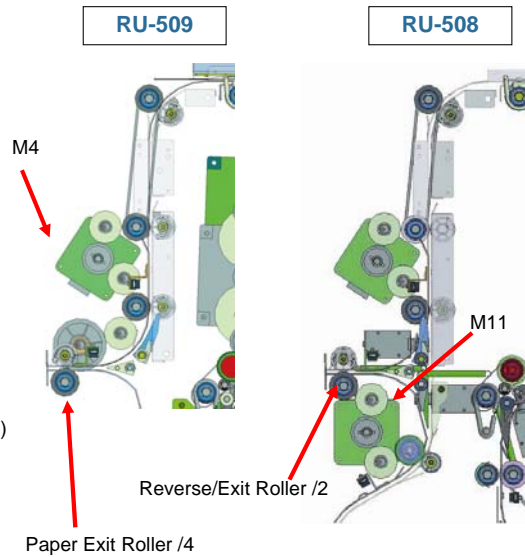
Change of the Drive System

RU-508

- Reverse/Exit Roller /2
→ Driven by the Reverse/Exit Motor (M11)

RU-509

- Paper Exit Roller /4
→ Driven by the Paper Exit Motor (M4)





NARRATION:

Since the reverse/exit mechanism is not provided in the C8000 main body, the RU-508 reverses paper.

The reverse/exit mechanism is provided in the C7000 main body, therefore the reverse/exit mechanism is not needed in the RU-509

1.7 Paper Exit Section (3/3)

❖ Paper Exit Conveyance Control (In the Humidification ON mode)

- **Receives a print job**
→ Paper Exit Motor (M4) turns ON at 400 mm/s

- **Color Density Detection Timing Sensor (PS3) turns ON by detecting the Leading Edge** → At a specified time later, M4 speed is increased to 1000 mm/s

- **Paper Exit Sensor (PS12) turns OFF by detecting the Trailing Edge**
→ M4 speed is reduced to 400 mm/s

* The control differs depending on the Print Mode, the Paper Size and the Mode of the Finishing Device.

* The above shows the case of Paper Lengths of 140 mm to 200 mm (Without Punch Registration in the Post Processing Accessory)

NARRATION:

When receiving a Print Job, the Paper Exit Motor, (M4) turns on at 400 mm/s.

A specified time after the Color Density Detection Timing Sensor (PS3) turns on by detecting the Leading Edge of the Paper, M4 switches the Paper Exit Line Speed to 1000 mm/s.

After the Paper Exit Sensor (PS12) turns OFF, by detecting the Trailing Edge of the Paper, M4 switches the speed to 400 mm/s for the next sheet of paper.

The Paper Exit Line Speed of M4 is 400 mm/s, when the job has a Punch Registration programmed for the Post Processing Accessory.

1.8 Humidification Section

- Configuration/Drive
- Outline (When HM-102 is installed)
- Humidification Section Conveyance Control
- Pressure Release Mechanism (HM-102 Only)
- Humidification Section Conveyance Control
- Water Feed Control (HM-102 Only)
- Water Feed Tank Detection Control (HM-102 Only)
- Water Tank Full Detection Control (HM-102 Only)
- Maintenance





NARRATION:

The following topics will be covered in this Section.

Configuration/Drive

❖ [Configuration](#)

❖ Drive

- [Humidification Section Entrance Conveyance Drive](#) 
- [Humidification Section Conveyance Drive](#) 
- [Humidification Roller Pressure Drive \(HM-102\)](#) 
- [Water Feed Pump Drive \(HM-102\)](#) 

NARRATION:

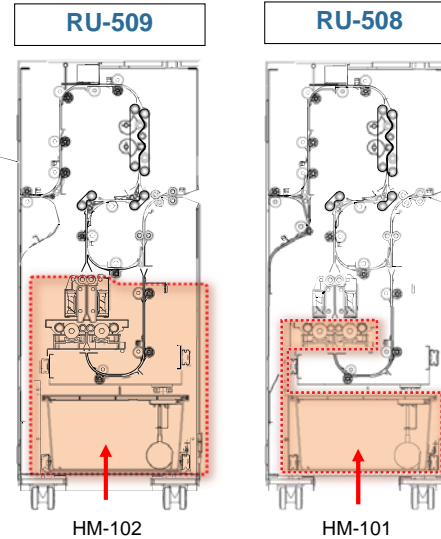
For the configuration and the drive of the humidification section, refer to the linked PDF files.

Humidifier Option

❖ Change of the Option Supply Unit

Supply Unit	HM-102	HM-101
Conveyance Path	○	×
Humidifier Mechanism	○	○
Humidification Section Fan (FM6 to FM11)	○	×
Conveyance Paper Fan (FM22)	×	○
Water Feed Tank	○	○

* Conveyance Paper Fan (FM22) for WAX Unevenness Prevention was eliminated in the RU-509.



NARRATION:

The partition of the supply unit of the RU and the HM humidification unit is changed in the RU-509.

Since the RU-508 that is connected to the C8000 requires the long conveyance path for the Wax Unevenness Prevention, the humidification section conveyance path is required even when the HM-101 is not installed. Therefore, in the case of the HM-101, the replacement to the humidification roller for humidifier, the mechanism for the humidification roller pressure, water feed tank, etc. are the supply unit of the option.

In the C7000, the humidification section is not needed for the RU-509 standard since paper is conveyed through the bypass route in the humidification OFF mode. Therefore, in the case of the HM-102, the whole humidification section, including the conveyance path, and humidifier fan is supplied as a Unit.

The conveyance paper fan (FM22) was eliminated in the RU-509 since it is not needed to prevent the Wax Unevenness.

Outline (When HM-102 is installed) (1/2)

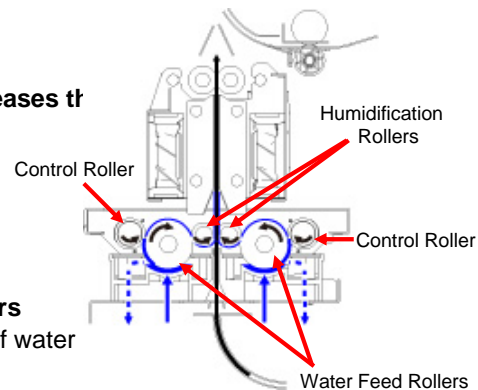
❖ Configuration

▪ Humidification Roller, Water Feed Roller:

- **Surface is moderately rough**
→ Water is easily attracted
- **Deterioration of the rollers decreases the water attraction**
→ Recovered by cleaning

▪ Control Rollers :

- **Pressed to the Water Feed Rollers**
→ Provides a uniform thickness of water



NARRATION:






When the HM-102 is installed, the surface of the Right and Left Humidification Rollers, is moderately rough, and allows the water to be easily attracted.

The deterioration of the rollers decreases the water attraction, but can be recovered by cleaning them.

Thickness of the water on the Water Feed Rollers is made uniform by the pressure of the Control Rollers.

Outline (When HM-102 is installed) (2/2)

❖ Humidification Control

- Feeds water to the Water Tank from the Water Feed Tank

- Water covers the Water Feed Rollers

- Uniform thickness is maintained by the Control Rollers

- Water is then moved to the Humidification Rollers

- Supplies water to the surfaces of the paper
(Water content of the paper increases by 2%)

- Humidification Section Paper Fans remove any extra water

NARRATION:

In the Humidification Mode, the Pump Motor, (P1) always feeds water into the Water Tank assembly with the amount of 450 cc/min, which equals 5 times or more than the Capacity of the Water Tank assembly, plus Humidification.

Unused water flows back into the Water Feed Tank through the Collection Groove, and the water is kept at a constant depth within the tank. The Water Feed Rollers are sunk into the Water Tank, and are therefore coated by the water.

The uniform thickness of the water is controlled by the Pressed Control Rollers, and is then transferred to the Humidification Rollers.

A uniform coating of water is fed to the paper passing between the Right, and Left Humidification Rollers, where the water content of the paper is increased by about 2%.

The water that does not soak into the paper, but remains on it's surface, is removed by the Humidification Section Paper Fans 1 to 6, (FM6 to FM11).

Humidification Section Conveyance Control

- Humidification Section Entrance Conveyance Motor (M7)
→ Drives the Humidification Section Entrance Conveyance Rollers /1 and /2
- Humidification Section Conveyance Motor (M8)
→ Drives the Humidification Section Conveyance Rollers /1, /2 and Humidification Roller /Rt
- M7: Turns ON at the Line Speed of the Main Body
→ Accelerates to 400 mm/s at a specified time after the Humidification Section Entrance Sensor (PS7) turns ON
- M8: Runs at a constant speed of 400 mm/s

NARRATION:

The Humidification Section Entrance Conveyance Motor (M7), and the Humidification Section Conveyance Motor (M8), execute the conveyance in the Humidification Section.

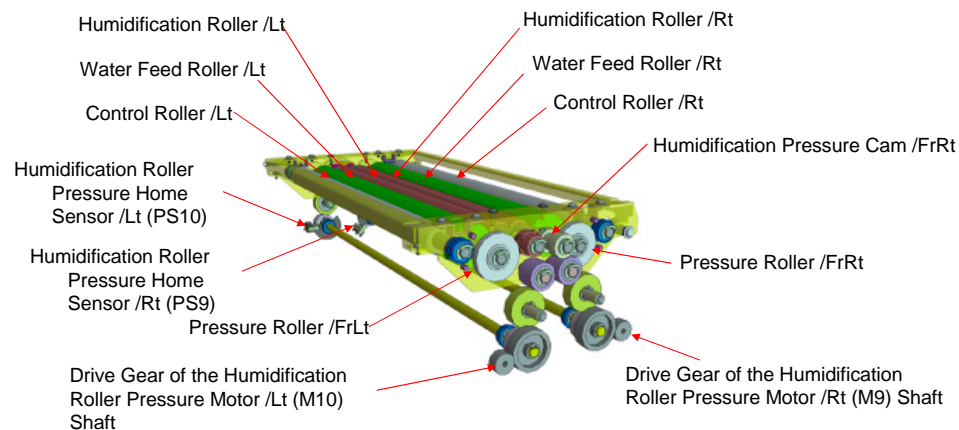
M7 drives the Humidification Section Entrance Conveyance Rollers 1 and 2, while M8 drives the Humidification Section Conveyance Rollers 1, and 2, and the Right Humidification Roller.

M8 is driven at the constant speed of 400 mm/s to stabilize the amount of water fed to the paper.

Pressure Release Mechanism (HM-102 Only) (1/2)

- **Humidification Roller Pressure Motors /Rt (M9) and /Lt (M10) drive the /Rt and /Lt Humidification Pressure Cams**

→ Pressure of the Humidification Roller/Water Feed Roller/Control Roller is Controlled



NARRATION:

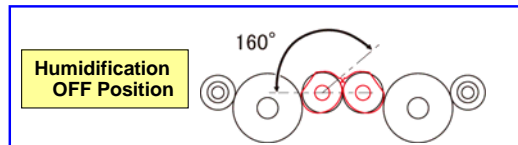
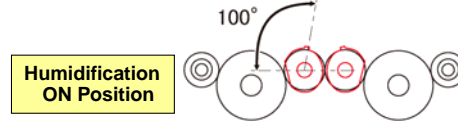
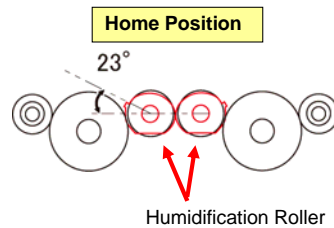
The humidification rollers /Rt and /Lt and the water feed rollers /Rt and /Lt are pressed to the paper path side by the spring of the control rollers /Rt and /Lt shafts. Next, the humidification pressure cams /FrRt and /RrRt, /FrLt and /RrLt driven by the humidification section roller pressure motors /Rt (M9) and /Lt (M10) are contacted to the pressure rollers /FrRt and /RrRt, /FrLt and /RrLt to execute pressure/release. Finally, the humidification section roller pressure home sensors /Rt (PS9) and /Lt (PS10) detect the position of the pressure condition.

Pressure Release Mechanism (HM-102 Only) (2/2)

❖ Deletion of the Humidification OFF Position

- Combination of the Humidification OFF Mode + Humidification Section Conveyance is not available → Humidification OFF Position: Deleted

Position	RU-509/HM-102	RU-508/HM-101
Pressing Release Position	2 Positions (Home Position ⇄ Humidification ON Position)	3 Positions (Home Position ⇄ Humidification ON Position ⇄ Humidification OFF Position)



NARRATION:

There are 2 types of pressure conditions for the Humidification Rollers;

Home Position and Humidification ON, according to the angle of the claws of the Right and Left Humidification Pressure Cams, of the Humidification Roller Shaft.

In the Humidification OFF mode of the RU-509/HM-102, paper is always conveyed through the bypass route. Therefore, the path that paper is conveyed through the humidification section in Humidification OFF mode was eliminated and the Humidification OFF position in the Humidification Section Pressure Release Mechanism is not needed anymore.

Refer to the notes section for additional details.

Notes:

Home Position

The angle of the Humidification Pressure Cam is at 23° when the rollers are in the Home Position.

The Right and Left Humidification Pressure Cams press each other to separate the Right and Left Humidification Roller.

The Right Humidification Pressure Cam and the Right Pressure Roller, the Left Humidification Pressure Cam and the Left Pressure Roller press each other, and the Right Humidification Roller and the Right Water Feed Roller, the Left Humidification Roller and the Left Water Feed Roller are all released.

Humidification ON Position

The angle of the humidification pressure cam is 100° when the rollers are in the Humidification ON Position.

Since all of the Humidification Pressure Cams and Pressure Rollers do not press each other, the Right and Left Humidification Rollers, the Humidification Rollers and the Water Feed Rollers are pressed.

Humidification Section Conveyance Control

- **Receives a Print Job**
→ Humidification Section Conveyance Motor (M8) turns ON
- ↓
- **Humidification Section Entrance Sensor (PS7) turns ON**
→ At a specified time later, the Humidification Section Roller Pressure Motors /Rt (M9) and /Lt (M10) turn ON
- ↓
- **Pressed Position: Move to the Humidification ON Position from the Home Position**
↓ Paper through
- **Humidification Section Entrance Sensor (PS7) turns OFF**
→ At a specified time later, M9 and M10 turn ON→
- ↓
- **Pressed Position: Moves to the Home Position**
↓
- **Paper Exit Sensor (PS12) turns OFF by Detecting the Trailing Edge of the Last Sheet of Paper** → M8 turns OFF

NARRATION:

When receiving a Print Job, the Humidification Section Conveyance Motor, (M8) turns on.

After a specified time, the Humidification Section Entrance Sensor, (PS7) turns on by detecting the Leading Edge of the 1st sheet of paper, then the Right and Left Roller Pressure Motors, (M9) and (M10) turn on, and move to the Humidification on Position, from the Home Position.

At a specified time after PS7 turns OFF, M9 and M10 turn on, and return to the Home Position.

When the Paper Exit Sensor, (PS12) detects the Trailing Edge of the Last Sheet of Paper, and turns OFF, which turns OFF M8.

* When the interval between the Paper Exit of the Main Body is long, (such as when the 4th and 5th sheet of A4 or Letter sized paper are duplex printing under a long copy job), the Pressed Condition is returned to the Home Position, and then moved back to the Humidification on Position again.

Water Feed Control (HM-102 Only)

- **Pump Motor (P1) turns ON for specified time when turning ON the Power**
→ Supplies water for any amount lost due to evaporation
- **With Humidification: Specified time after the Entrance Sensor (PS1) turns ON**
→ P1 turns ON, Paper Exit Sensor (PS12) turns OFF → P1 turns OFF
- **Without Humidification: P1 does not turn ON**
- **Water flows back to the Water Feed Tank through the Filtered Collection Groove**



NARRATION:

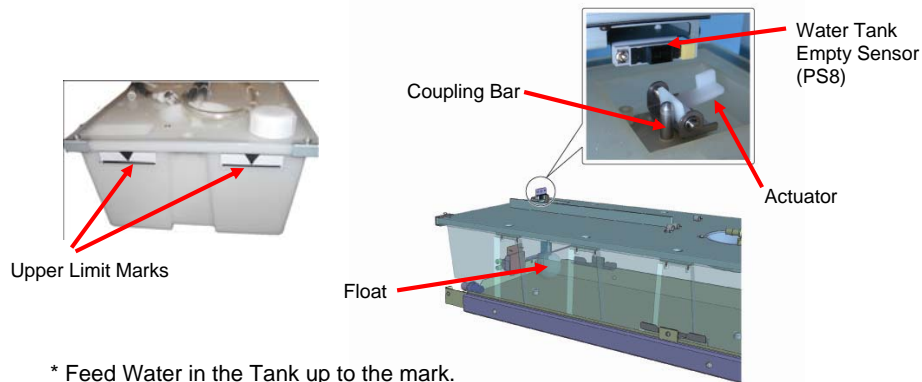
The initial operation to fill the Water Tank when turning on the power, the Pump Motor, (P1) turns on for an amount of time and supplies water for the amount lost due to evaporation.

With the Humidification Process on, P1 turns on at the specified time after the Entrance Sensor, (PS1) turns on by detecting the Leading Edge of the paper. P1 then turns OFF when the Paper Exit Sensor, (PS12) turns OFF by detecting the Trailing Edge of the paper.

When the Humidification Process is off, P1 does not turn on.

Water Feed Tank Detection Control (HM-102 Only)

- **Water Tank Empty Sensor (PS8) detects the Empty Condition**
- **Humidification Process Usage** → Coupling Bar of the Float lowers during usage → Actuator turns ON PS8 → Message is displayed on the Operation Panel



NARRATION:

When the Water Level in the Water Feed Tank lowers, the Coupling Bar of the Float lowers. Then, the Actuator turns on the Water Tank Empty Sensor, (PS8) and the Humidification Function is disabled.

When PS8 turns on in the Humidifier on Mode, a message appears on the Operation Panel of the Main Body.

If there is a sheet of paper being printed when PS8 turns on, the Main Body completes the Paper Exit for a maximum of 10 Sheets before stopping operations.

Water Tank Full Detection Control (HM-102 only)

- **Water Level of Water Tank Collection Groove (Overflow Detection)**

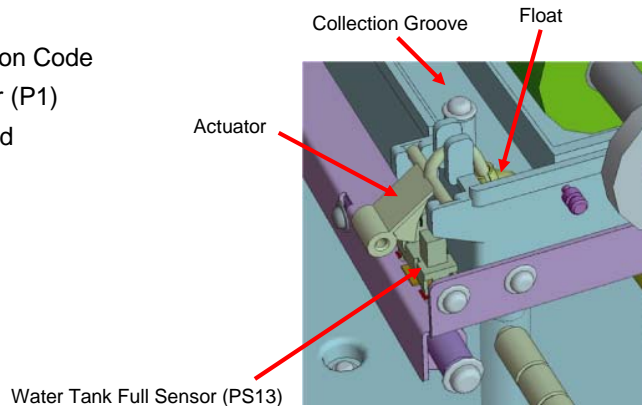
→ Detected by Water Tank Full Sensor (PS13)

- **PS13 turns OFF**

→ Displays Malfunction Code

→ Stops Pump Motor (P1)

→ Humidifier Disabled



NARRATION:

When the Refill Route from the Water Tank Closes and the Water Level in the Collection Groove exceeds the specified altitude, the Float comes up. Then, the Actuator turns OFF the Water Tank Full Sensor (PS13) and the Pump Motor (P1) turns OFF.

When a Water Tank Full Condition is detected, a Malfunction Code is displayed on the Operation Panel of the Main Body and the Humidification Function is disabled.

Maintenance

❖ Periodically HM-102 Replaced Parts

Every 300,000 Prints:

Humidification Roller /Rt	A1TU5001##	Quantity: 1
---------------------------	----------------------------	-------------

Humidification Roller /Lt	A1TU5002##	Quantity: 1
---------------------------	----------------------------	-------------

❖ As Needed HM-102 Replaced Parts

Every 300,000 Prints:

Water Feed Filter	A1TU5215##	Quantity: 1
-------------------	----------------------------	-------------

Every 1,500,000 Prints:

Water Feed Roller	A1TU5003##	Quantity: 2
-------------------	----------------------------	-------------

NARRATION:

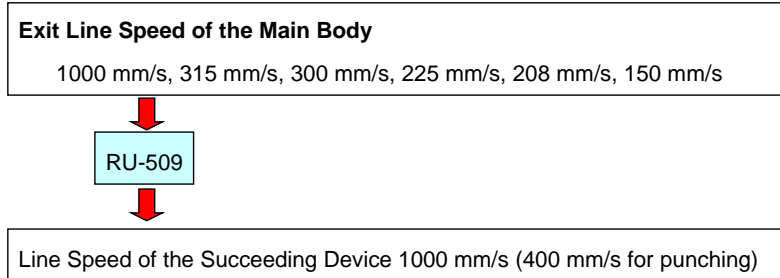
A list of the HM-102 replacement parts is listed here along with links to an image of the part.

1.9 Conveyance Control (1/4)

❖ Change of the Exit Line Speed of the Main Body

	RU-509/HM-102	RU-508/HM-101
Exit Line Speed of the Main Body	C7000 (1000 mm/s, 315 mm/s, 300 mm/s, 225 mm/s, 208 mm/s, 150 mm/s)	C8000 (400 mm/s, 300 mm/s, 200 mm/s)

- The Line Speed is adjusted in the RU, and paper is conveyed to the next device.



NARRATION:

For the C8000 that is connected to the RU-508/HM-101, there are 3 types of exit line speed of the main body; 400mm/s, 300mm/s, and 200mm/s.

When the C7000 is connected to the RU-509/HM-102, there are 6 types of exit line speed of the main body; 1000mm/s (for reverse/exit), 315mm/s, 300mm/s, 225mm/s, 207.7mm/s, and 150mm/s.

The RU receives paper at the exit line speed of the main body, and increases the speed to 1000mm/s to convey to the subsequent device.

However, it exits paper at 400mm/s when the FS-612 or the FS-531 is waiting for punch registration.

1.9 Conveyance Control (2/4)

❖ Humidification OFF Mode (Normal Print)

Exit Line Speed of the Main Body	Entrance Conveyance Motor (M1)/ Intermediate Conveyance Motor (M2)	De-Curler Conveyance Motor (M3)	Paper Exit Motor (M4)	
			Exits at 1000 mm/s	Exits at 400 mm/s
150	150	150	150 → 1000	150 → 1000 → 400
208	208	208	208 → 1000	208 → 1000 → 400
225	225	225	225 → 1000	225 → 1000 → 400
300	300	300	300 → 1000	300 → 1000 → 400
315	315	315	315 → 1000	315 → 1000 → 400
1000	1000 → 400	400	400 → 1000	400 → 1000 → 400

RU-508

- Speed is adjusted at the Entrance Conveyance Section
→ Conveys paper through the De-Curler Section at the constant speed (400 mm/s)

RU-509

- Speed is not adjusted at the Entrance Conveyance Section
→ Conveys paper through the De-Curler Section at the same speed as the Exit Speed of the Main Body → Speed is adjusted at the Paper Exit Section

NARRATION:

In humidification OFF mode (normal mode), speed is adjusted at the entrance conveyance section in the RU-508 and paper is conveyed through the de-curler section at constant speed (400mm/s). This is because paper is conveyed through the humidification section route in the humidification OFF mode of the RU-508.

In the RU-509, speed is not adjusted at the entrance conveyance section and paper is conveyed through the de-curler section at the exit line speed of the main body. This is because paper is conveyed through the bypass route in the humidification OFF mode of the RU-509. Speed is adjusted at the paper exit section in the RU-509. However, only when the exit line speed of the main body is 1000mm/s, speed is adjusted at the entrance conveyance section (M1).

1.9 Conveyance Control (3/4)

❖ Humidification OFF Mode (Output Paper Density Detection Mode)

Exit Line Speed of the Main Body	Entrance Conveyance Motor (M1)/Intermediate Conveyance Motor (M2) *	De-Curler Conveyance Motor (M3)	Paper Exit Motor (M4)
150	150 → 400	400	400 → 1000
208	208 → 400		
225	225 → 400		
300	300 → 400		
315	315 → 400		

- Speed is adjusted at the Entrance Conveyance Section → Conveys paper through the Output Paper Density Detection Section at the constant speed of (400 mm/s)

* The control of M1/M2 differs depending on the Paper Exit Line Speed of the Main Body and the Paper Size. However, the speed is changed to 400 mm/s. Refer to the Service Manual for additional details.

NARRATION:

In humidification OFF mode (output paper density detection mode), speed is adjusted at the entrance conveyance section and paper is conveyed through the output paper density detection section at constant speed of (400mm/s).

1.9 Conveyance Control (4/4)

❖ Humidification ON Mode

Exit Line Speed of the Main Body	Entrance Conveyance Motor (M1)	Humidification Section Entrance Conveyance Motor (M7)	Humidification Section Conveyance Motor (M8)	Intermediate Conveyance Motor (M2)	De-Curler Conveyance Motor (M3)	Paper Exit Motor (M4)	
						Exits at 1000 mm/s	Exits at 400 mm/s
150	150	150 → 400	400	400	400	400 → 1000	400 → 1000 → 400
208	208	208 → 400					
225	225	225 → 400					
300	300	300 → 400					
315	315	315 → 400					
1000	1000 *	1000 → 400					

- Speed is adjusted at the Humidification Section Entrance (M7) → Conveys paper through the Humidification Section at the constant speed of (400 mm/s)

* When the Exit Line Speed of the Main Body is at 1000 mm/s, the control of M1 differs depending on the Paper Size. Refer to the Service Manual for additional details.

NARRATION:

Paper is conveyed through the humidification section at 400mm/s to keep the water supply amount to the paper stable.

1.10 Other Controls

❖ Fan Control

- [Configuration / Control](#)



NARRATION:

For the detail of the fan control In the RU-509 and HM-102, refer to the linked PDF file.

1.11 Lesson 1 Review

Lesson 1

In this Lesson, you learned about:

- 1.1 Main Differences
- 1.2 Overall Composition
- 1.3 Bypass Conveyance Section
- 1.4 Entrance Conveyance Section
- 1.5 De-Curler Section
- 1.6 Output Paper Density Detection Section
- 1.7 Paper Exit Section
- 1.8 Humidification Section
- 1.9 Conveyance Control
- 1.10 Other Controls

NARRATION:

In this lesson, you learned about the Differences in the RU-509 and HM-102 for the bizhub PRESS C7000 Series.

Lesson 2: FS-531

Topics covered in the Lesson include:

- 2.1 Main Differences
- 2.2 Control
- 2.3 Lesson Review

NARRATION:

The following topics will be covered in this lesson.

2.1 Main Differences

	FS-531	FS-520	Details
Line Speed Change	C7000 (150 mm/s, 208 mm/s, 225 mm/s, 300 mm/s, 315 mm/s, 1000 mm/s) RU-509 (1000 mm/s, but 400 mm/s for the Sub Tray/Punch Registration)	C6501 (152 mm/s, 210 mm/s, 303 mm/s, 667 mm/s)	Respond to the Line Speed Change associated with RU Connection and the Main Body Change
Control	1. Timings that trigger the controls are moved to the Upstream. 1. Subtray Paper Exit Control: Constant Speed 400 mm/s (When the Paper Length is 370 mm or shorter)	1. Conventional way to control 2. The Acceleration and Deceleration Control is applied to all sizes of papers.	Respond to the Line Speed Change associated with the RU Connection and the Main Body Change
FNS Control Board	Common design as the FS-612	Conventional Board	Respond to the Line Speed Change

NARRATION:

Here are main differences for the FS-531 versus the FS-520 that is used in the C6501.

The FS-531 is connected to the C7000 main body or to the RU-509, and the receiving line speed was changed accordingly.

Since the input line speed was changed, the line speed of the FS needed to be changed also.

Therefore, the switch timing of the internal timings does not match at some points. The solution for this was to start the timing start of control during paper passage in the upper stream of the finisher.

To respond to this line speed change, the Finisher Control Board was also changed.

2.2 Control

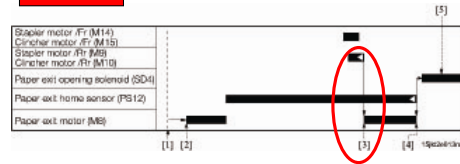
- Changes in timings that trigger the controls

Example: Paper Exit Motor (M8) when Stapling Paper

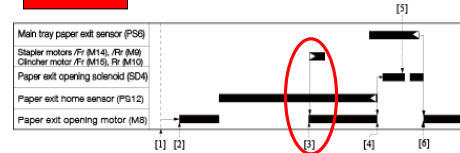
FS-520: Start at Stapling Complete
↓ (Change)

FS-531: At Stapling Start

FS-520



FS-531



- Change in the Sub Tray Paper Exit Control (When the RU is connected)
 Paper Length 370 mm or shorter:
 Exited at the Constant Speed of 400 mm/s
 Paper Length 371 mm or longer:
 Exited after the Speed Change from 1000 mm/s to 400 mm/s

NARRATION:

For controls to be common with the FS-612, the changing of the start of control timing to upper stream and etc. are now conducted different points.

For example, in the staple mode of the FS-520, the start timing was when the paper exit opening motor (M8) completed stapling. However, in the FS-531, the start timing is when stapling starts.

With the sub tray paper exit control, speed is controlled to all sizes of paper in the FS-520. However, in the FS-531, paper is conveyed at constant speed 400mm/s for paper lengths of 370mm when the RU is connected. For paper lengths of 371mm or more, the speed is increased to 1000mm/s and then reduced to 400mm/s when the paper trailing edge goes through the Finisher entrance sensor (PS4) regardless whether the RU is connected or not.

2.3 Lesson 2 Review

Lesson 2

In this Lesson, you learned about:

2.1 Main Differences

2.2 Control

NARRATION:

In this lesson, you learned about the differences of the FS-531 for the bizhub PRESS C7000 Series.

Lesson 3: FS-512

Topics covered in the Lesson include:

- 3.1 Main Differences
- 3.2 Control
- 3.3 Lesson Review

NARRATION:

The following topics will be covered in this lesson.

3.1 Main Differences

	FS-612	FS-607	Details
Receiving Line Speed Change	RU-508 (1000 mm/s, but 400 mm/s during the Punch Registration Mode or Sub Tray Mode)	C6501 (152 mm/s, 210 mm/s, 303 mm/s, 667 mm/s)	In response to the Line Speed change caused by the PPM change of the Main Body (from 65 ppm to 80 ppm)
Control	1. Timings that trigger the controls are moved to the Upstream. 2. Subtray Paper Exit Control: Constant Speed 400 mm/s (When the Paper Length is 370 mm or shorter)	1. Conventional way to control 2. The Acceleration and Deceleration Control is applied to all sizes of papers.	In response to the line speed change caused by the PPM change of the main body (from 65ppm to 80ppm)
FNS Control Board	New Design	Conventional Board	In response to the Line Speed Change

NARRATION:

Here are the Main Differences for the FS-612:

The Receiving Line Speed is changed since the RU-508 is connected to the Main Body on the C8000 Series.

According to this change, the Line Speed in the FS was also changed.

These changes led to a problem that some timings that switch internal processes were too late.

So, to address this, several measures (such as moving the timing that triggers the control to the Upstream) were taken.

In order to respond to the Line Speed Change, a New Finisher Control Board was designed.

3.2 Control

- Changes in timings that trigger the controls

Example: Paper Exit Motor (M8) when Stapling Paper

FS-607: Completion of Stapling

↓ (Changed)

FS-612: Start of Stapling

- Change in the Sub Tray Paper Exit Control

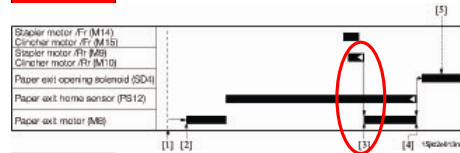
Paper Length 370 mm or shorter:

Exited at the Constant Speed of 400 mm/s

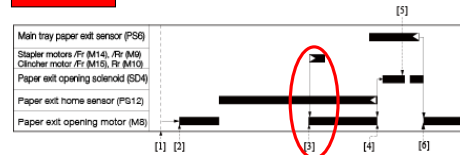
Paper Length 371 mm or longer:

Exited after the Speed Change from 1000 mm/s to 400 mm/s

FS-607



FS-612



NARRATION:

Changes such as moving the timing that triggers the control to the Upstream was executed for the Staple Mode and so on were implemented.

For example, for the FS-607 during the Staple Mode, the operation of the Paper Exit Motor, (M8) to open the Paper Exit Opening, is triggered at the completion of the Stapling Process. However, in the FS-612, the operation is triggered at the start of the Stapling Process.

For the Sub Tray Paper Exit Control, the Acceleration, and Deceleration Control is applied to all sizes of paper in the FS-607. However, in the FS-612, paper with the Paper Length of 370 mm, or shorter is exited at the constant speed of 400 mm/s. However, Paper with the Paper Length of 371 mm, or longer is accelerated to 1000 mm/s, but is exited at 400 mm/s when the Trailing Edge passes through the Sub Tray Paper Exit Roller.

3.3 Lesson 3 Review

Lesson 3

In this Lesson, you learned about:

3.1 Main Differences

3.2 Control

Narration:

In this lesson, you learned about the differences for the FS-612 Finisher.

Lesson 4: PK-512/513

Topics covered in the Lesson include:

- 4.1 Main Differences
- 4.2 Punch Standby Position Movement Control
- 4.3 Punch Position Correction
- 4.4 Lesson Review

NARRATION:

The following topics will be covered in this lesson.

4.1 Main Differences

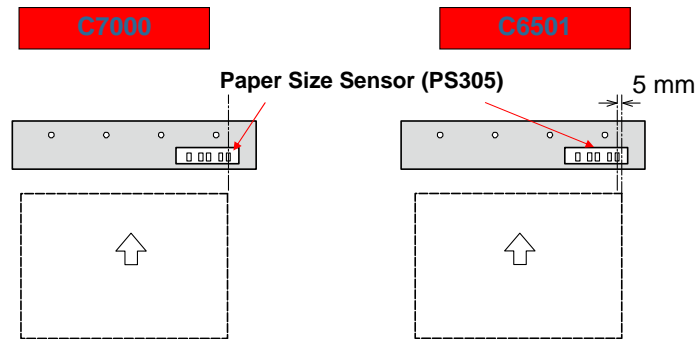
	PK-512/513 (C8000)	PK-512/513(C6501)	Remark
Punch Standby Position Movement Control	Standby at the paper side edge	Standby at the inside of the Paper Side Edge	For Productivity Improvement
Punch Position Correction Control	Switch the Control by ON/OFF of the Paper Size Sensor (PS305)	Control with a Constant Pattern	For Productivity Improvement

NARRATION:

Here are the main differences in the Punch Units.

The Punch Standby Position Movement Control and the Punch Position Correction Control were changed.

4.2 Punch Standby Position Movement Control



Standby at the Paper Side Edge
(Switches the pattern by turning
ON/OFF of the Sensor →
Distance Moved is reduced)

Standby at 5 mm inside the Paper Side
Edge (Sensor turns ON reliably, though
distance moved is long)

NARRATION:

Here are the details of the Punch Standby Position Movement Control.

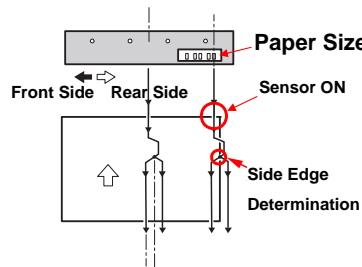
In the case of the C6501, for the Paper Side Edge Detection for punching, the Paper Size Sensor, (PS305) stands by at 5 mm inside the Expected Paper Side edge, so that it turns on reliably. Meanwhile, in the case of the C7000, it stands by at the Expected Paper Side Edge and the Paper Side Edge is detected by whether the sensor turns on or OFF. In this way the distance moved is reduced, and the productivity is improved.

4.3 Punch Position Correction Control

Sensor turns ON when the paper is conveyed to the Rear Side.



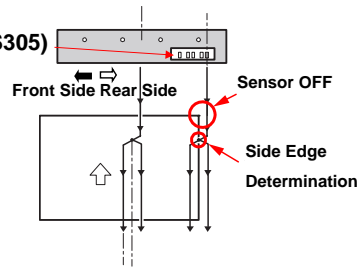
Punch Unit moves to the Rear Side once and then moves to the Front Side, and the Side Edge is determined when the Sensor turns ON from OFF



Sensor turns OFF when paper is conveyed to the Front Side.



Punch Unit moves to the Front Side, and the Side Edge is determined when the Sensor turns ON from OFF



NARRATION:

Here are the details of the punch position correction control.

When the specified sensor in the Paper Size Sensor, (PS305) detects paper and turns on, it judges that the paper was conveyed to the Rear Side.

Moreover, when the Paper Size Sensor, (PS305) is turned off, it is judged that the paper was conveyed to the Front Side.

Notes:

When detecting that the Paper Side Edge is at the Rear of the Sensor, the Punch Shift Motor (M302) rotates in the Reverse Direction to move the Punch Unit to the Rear Side.

Then, the Side Edge is determined when the Paper Size Sensor(PS305) turns OFF from ON.

After the specified time, the Punch Shift Motor (M302) rotates in the Forward Direction to return the Punch Unit to the Front Side.

Then, the Side Edge is determined when the Paper Size Sensor(PS305) turns ON from OFF.

This position is the Side Edge Reference Position.

When detecting that the Paper Side Edge is at Front of the Specified Sensor, the Punch Shift Motor (M302) rotates in the Forward Direction to move the Punch Unit to the Front Side.

Then, the Side Edge is determined when the Paper Size Sensor(PS305) turns ON from OFF.

4.4 Lesson 4 Review

Lesson 4

In this Lesson, you learned about:

- 4.1 Main Differences
- 4.2 Punch Standby Position Movement Control
- 4.3 Punch Position Correction

Narration:

In this lesson, you learned about the differences of the PK-512 and 513 Punch Kits.

Lesson 5: SD-506

Topics covered in the Lesson include:

5.1 Main Differences

5.2 Lesson Review

NARRATION:

The following topics will be covered in this lesson.

5.1 Main Differences

	New Procedure	Previous Procedure	Detail
Procedure to Replace the Trimmer Blade Motor (M31)	The jig for supporting the Trimmer Unit is used.	The jig for supporting the Trimmer Unit is NOT used.	Change in the Maintenance Procedures

[Replacing the Trimmer Blade Motor \(M31\)](#) 

NARRATION:

The only change for the SD-506 is that a new jig was created to support the Trimmer Unit when the Trimmer Blade Motor is replaced.

5.2 Lesson 5 Review

Lesson 5

In this Lesson, you learned about:

5.1 Main Differences

Narration:

In this lesson, you learned about the differences for the SD-506 Saddle Stitch Unit.

Course Completion

Congratulations, you have completed the bizhub PRESS C7000/C700P/C6000 Differences Training Course for the Engine Module.

After reviewing this course you should now have a good understanding of the following Lessons:

RU-509/HM-102

FS-531

FS-512

PK-512/513

SD-506

NARRATION:

Congratulations, You have completed the bizhub PRESS C7000/C700P/C6000 Web Based Differences Training Course for the Option Module.

After reviewing this course you should now have a good understanding of the following Lessons: RU-509/HM-102, FS-531, FS-512, PK-512/513 and the SD-506.