HT-4139-28/48 Scanner

Maintenance Manual

HITACHI

HT-4139 Maintenance Manual

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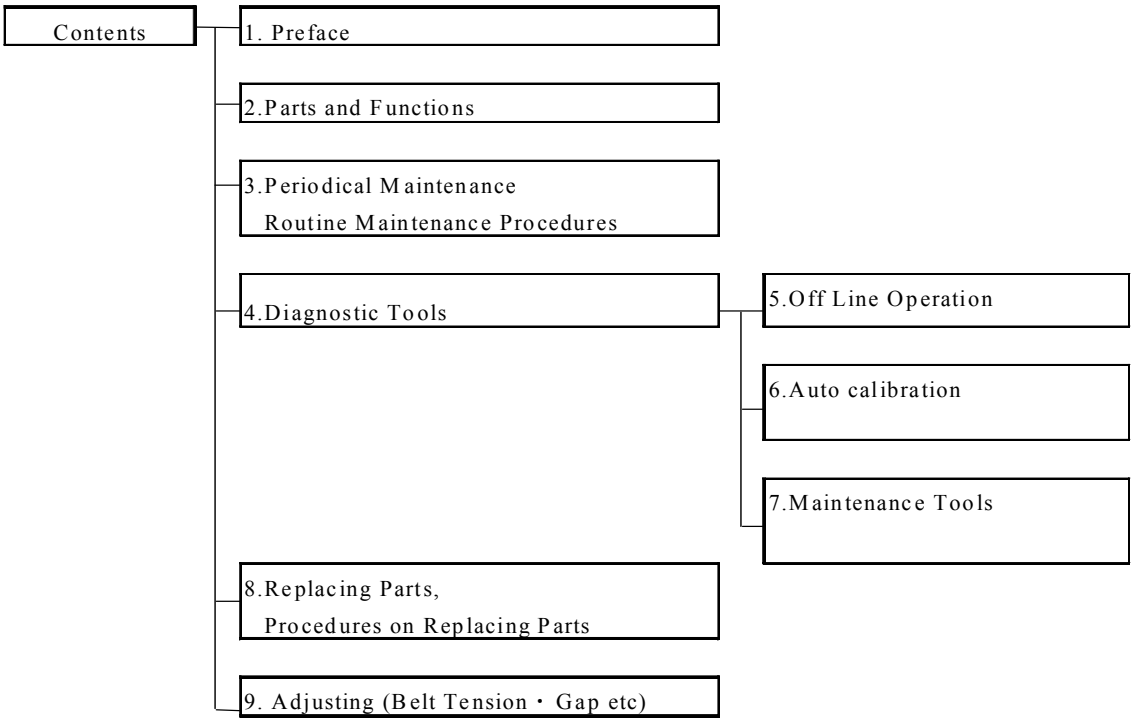
REVISION

REV	DATE	DWN.	CHKD.	APPD.	C O N T E N T
0	2010.2.15	A.K	M.O	T.S	・New

1 Preface

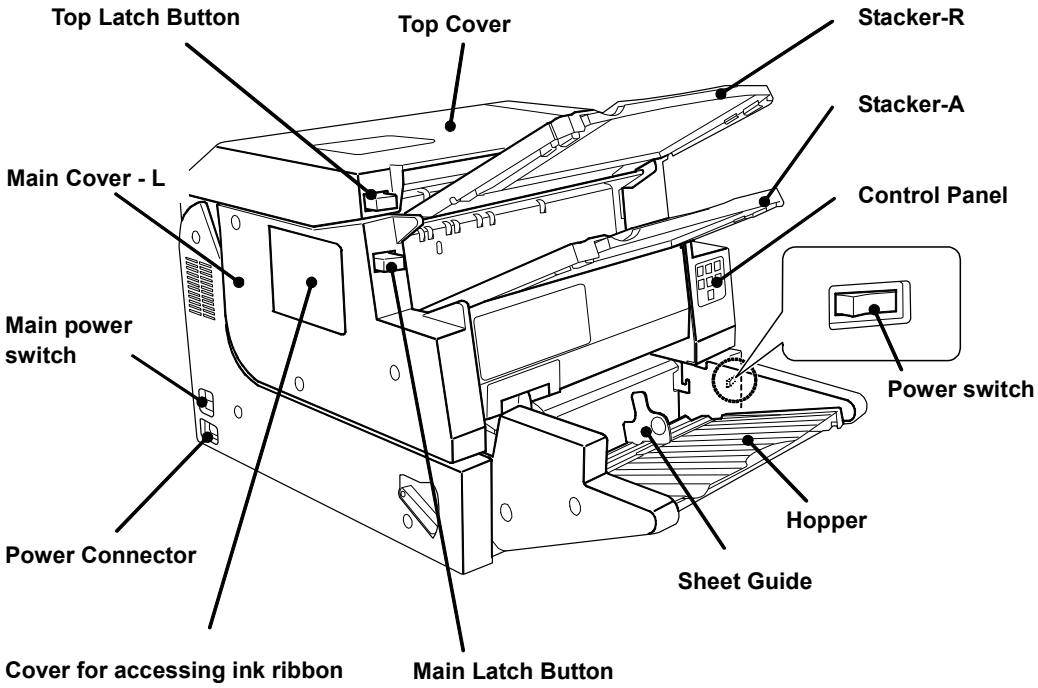
HT-4139 OCR Scanner functions by connecting the host through the USB interface. When conducting Maintenance, for some procedures only the device will be tested, while for other procedures the device must be connected to the host.

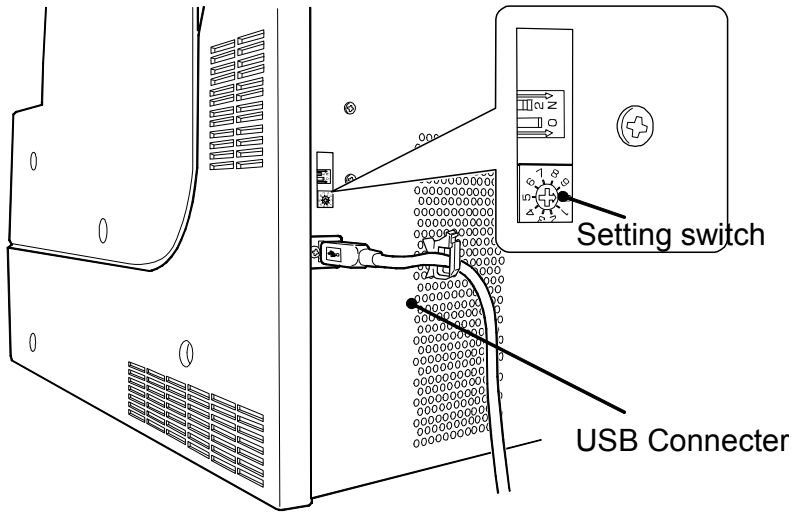
1.1 Maintenance Contents



2 Parts and Functions

2.1 Parts





2.2 LEDs

The status of the device is indicated by two panels.

Normal Mode

	Power LED (Green)	Status LED (Orange)	Action
1			The Power LED and the Status LED will be lit for 0.5 seconds after the Power is turned ON. (Lamp Check Mode)
2			Status LED will turn OFF for 0.2 seconds (Initializing OS)
3			The Status LED will start blinking. (Initilization will take about 15-30 seconds, maximum 90 seconds depending on the device)
4			The Status LED will blink slowly (Waiting for commands from the host)
5			The Status LED will turn off (Online operation) It will return to step 4. In case of unrecoverable error, the Status LED will remain turned ON

Dump Mode･･･Memory Dump for OCR Scanners during Maintenance

	Power LED (Green)	Status LED (Orange)	Action
1			The Status LED will turn OFF during initialization of the program.
2			During Dump Mode the Power LED will start blinking

Inline Loop Mode･･･Press Switch 9 to turn ON Power

	Power LED (Green)	Status LED (Orange)	Action
1			The Power LED and the Status LED will be lit for 0.5 seconds after the Power is turned ON. (LEDCheck Mode)
2			The Status LED will turn OFF during initialization of the program.
3			During Inline Loop Mode, the Status LED will start blinking. (The Power and Status LED will both turn OFF, and steps 2-4 will repeat itself)
4			

Local Test Mode･･･ Press Switch 8 to turn ON Power

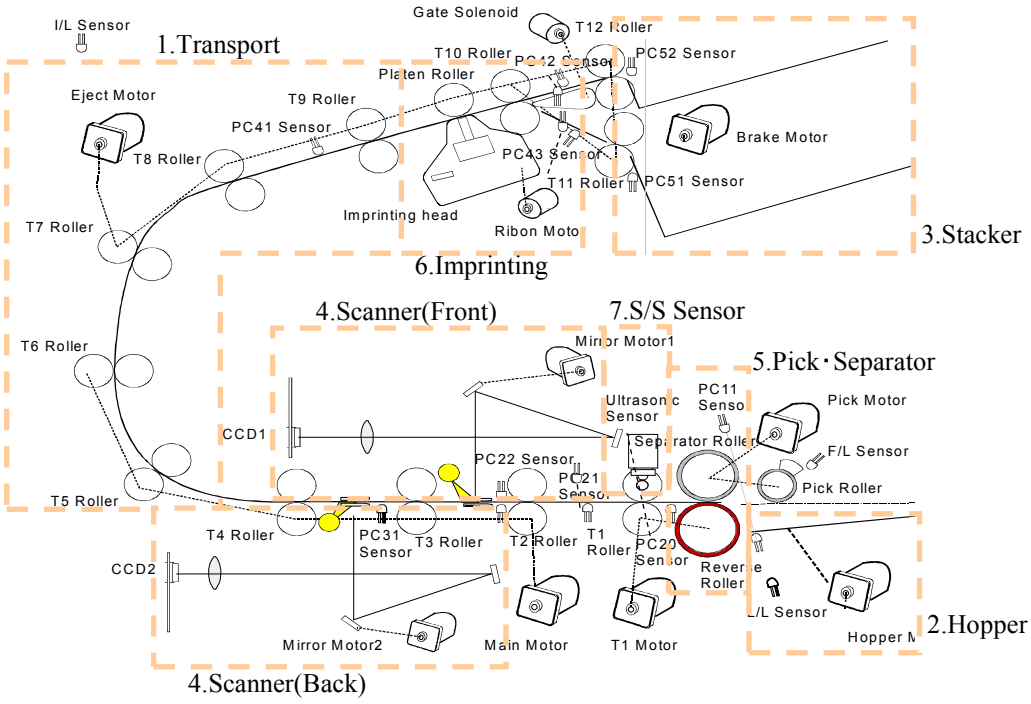
	Power LED (Green)	Status LED (Orange)	Action
1			The Power LED and the Status LED will be lit for 0.5 seconds after the Power is turned ON. (LEDCheck Mode)
2			Status LED will turn OFF for 0.2 seconds (Initializing OS)
3			The Status LED will start blinking. (Initilization will take about 15-30 seconds, maximum 90 seconds depending on the device)
4			Status LED will blink for 0.8 seconds – 1.0 seconds (Initiating Test to begin)
5			Status LED will turn OFF。 (Test On)

Download Mode････Select Download from the Maintenance Menu

	Power LED (Green)	Status LED (Orange)	Action
1			The Power LED and the Status LED will be lit for 0.5 seconds after the Power is turned ON. (LEDCheck Mode)
2			Status LED will turn OFF for 0.2 seconds (Initializing OS)
3			During Download Mode, the Status LED will start blinking. During Download, the Power LED will remain turned ON
4			When data is being written onto the Flash ROM the POER LED wil remain turned ON.
5			When Download is finished the Power LED will start blinking

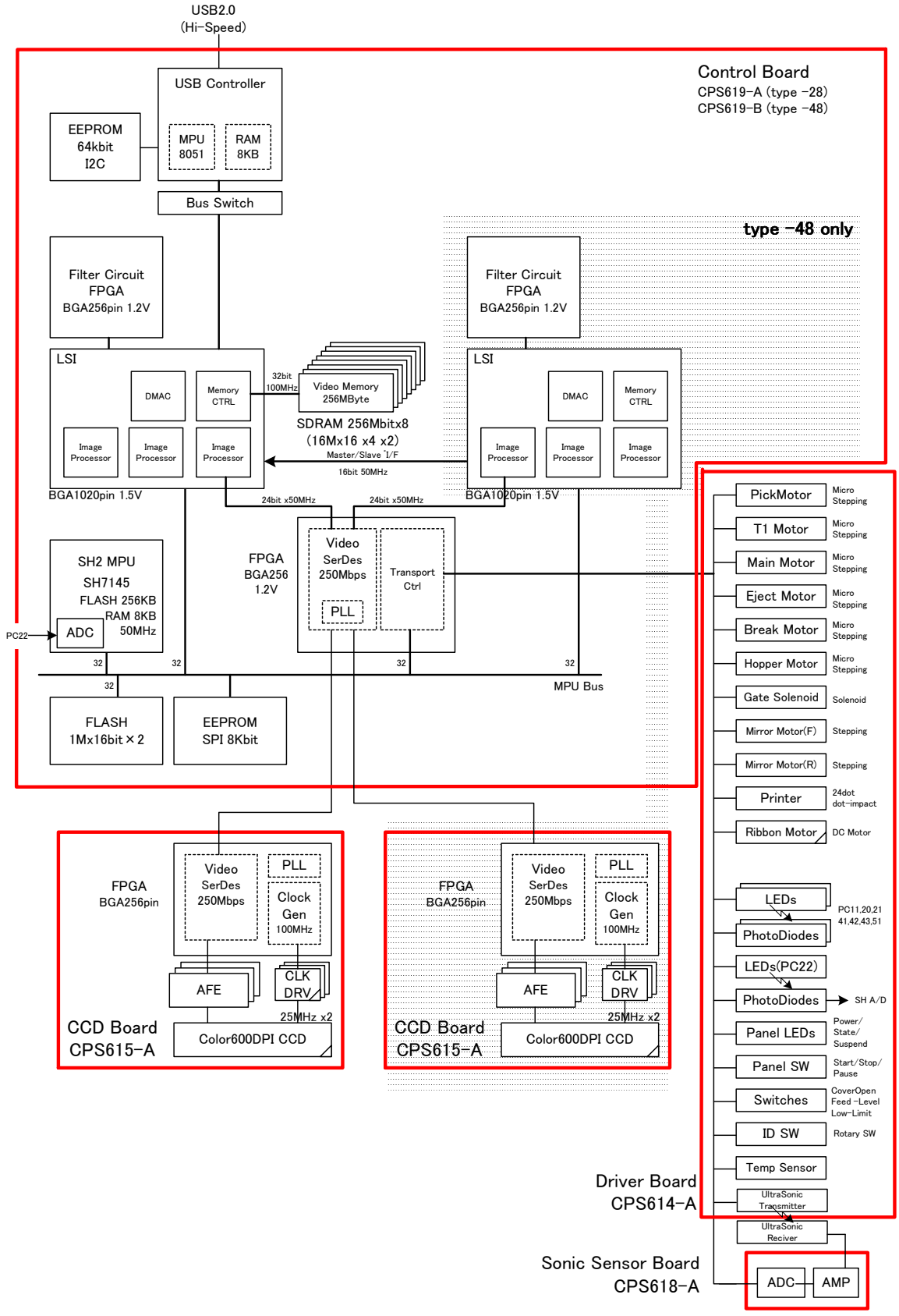
2.3 Mechanical Section

Paper feeding mechanism and paper scanning mechanism are show in the figure below.

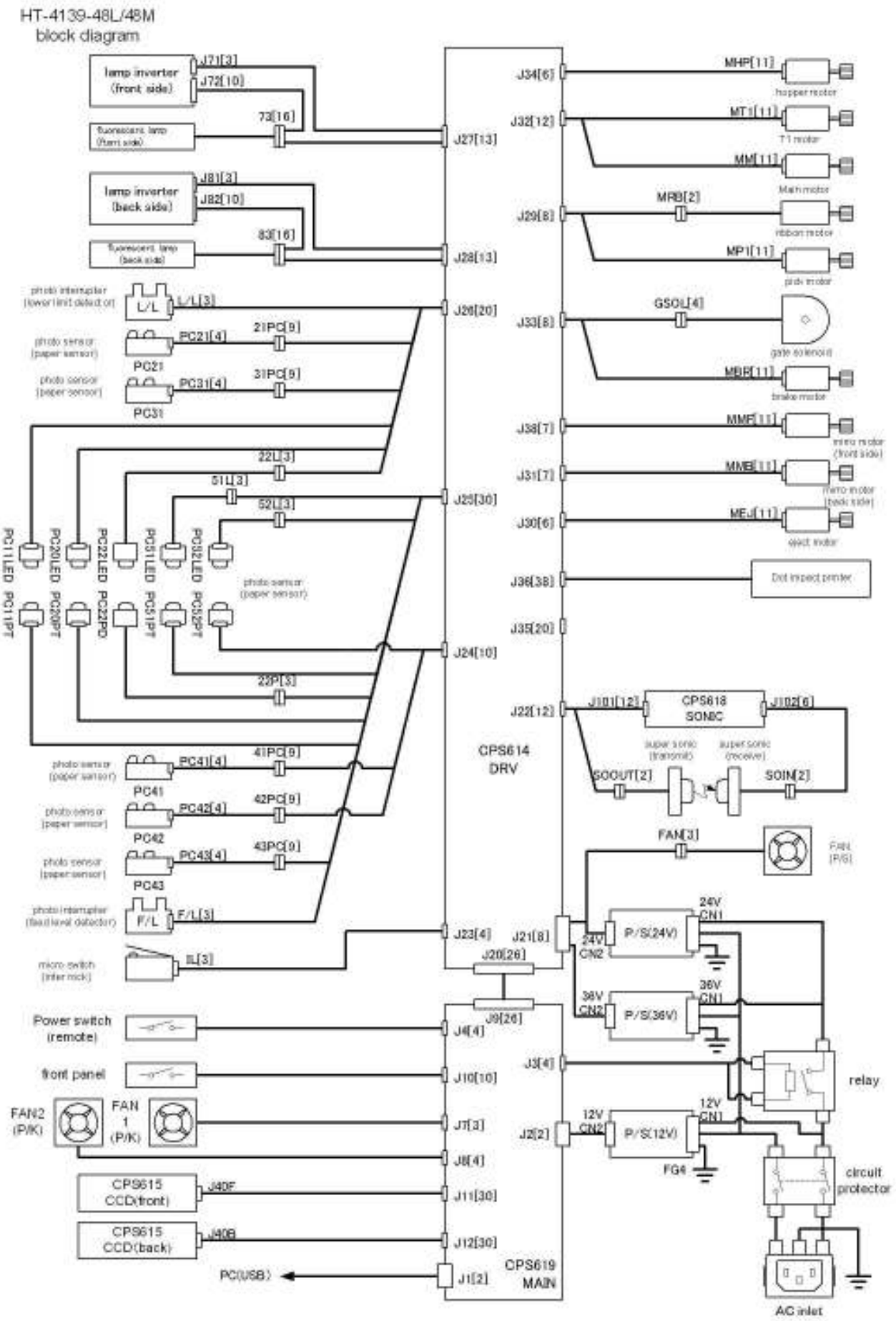


1. Paper Feeding mechanism
   Paper Feeding mechanismdrives rollers by the belt of the Stepping motor (T1,Main,Eject,Brake) and sensors (PC20,21,31,41,42,43) are installed to control the level of sheets.
2. Hopper Mechanism
   Hopper has a swing mechanism by the hopper motor. Its stroke is 55mm. Detection of vertical position is controlled by the sensor（F/L、L/L）.
3. Stacker Mechanism
   Stacker Mechanism is a free fall type. Two stackers are equipped in the device and sheets are ejected to two trays separately by switching gate. Ejecting speed is controlled by the stepping motor so that the ejected papers are aligned.
4. Scanning Mechanism
   Scanning Mechanism consists of the CCD which has the CCD Sensor, Mirror, and Fluorescent Lamp) and two sets are equipped, one for front and the other for back side.（28 type has one mechanism for the front side.）
5. Sheet Separator
   To feed a single paper for scanning from stack in the Hopper, it consists of Pick Roller, Separator Roller, and Reverse Roller.
6. Imprint Mechanism
   Dot impact printer type is installed for the Imprinting mechanism.
7. Multiple Feed Detection Mechanism
8. Two mechanisms for the dual feed detection are installed in the device, Ultra Sonic Sensor type and transmitted light type (PC22 Sensor).

2.4 Control Section



2.5 Block Diagram



Control Section consists of some blocks as shown in the Block Diagram

1. CCD Sensor Signal processing
2. Image processing (Image Processor)、
3. Video Memory
4. Transport Control
5. USB Control
6. Microcomputer　Control

3 Routine Maintenance

3.1 Maintenance Check List

Outlined below are the maintenance items that must be carried out during Routine Maintenance

Conduct the Maintenance in the numerical order outlined below

Order	Item	Part	Maintenance Period	Reference	Page
1	Cleaning	Lower Mirror (Front)	M6	Clean the head of the Lower Mirror (Front)(*)	3.3.1
		Cover Sheet (Front)		Clean the Cover Sheet (Front)	3.3.1
		Lower Mirror (Back) (*1)		Clean the head of the Lower Mirror (Back)(*)	3.3.2
		Cover Glass (Back) (*1)		Clean the Cover Glass (*)	3.3.2
		Pick Roller Separator Roller Reverse Roller		Clean the surface of the Rollers	3.3.3
		Drive Roller		Clean the Drive Roller.	3.3.4
		Pinch Roller		Clean the Pinch Roller	3.3.5
		Imprinting		Clean the Imprinting Head	3.3.6
		Platen		Clean the Platen	3.3.7
		Photo Sensor		Clean the Photo Sensor	3.3.8
		Ultra Sonic Sensor		Clean the Ultra Sonic Sensor	3.3.9
		Hopper Guide		Check the movement of the Hopper Guide	3.3.10
		Scanner ASSY (Front)		Clean the Mirror (No.1~3) and the Lens on the Scanner ASSY.	3.3.11
		Scanner ASSY (Back) (*1)			
		Gears		Applying grease on the Gear (SP), Separator Gear, and Gear (Reverse 3)	8.3.39
		Guide Latch		Check and adjust the Guide Latch. Also apply grease on the left and right Latches.	8.3.19
2	Checking	Guide Gap (Left and Right side of Device)	M6	Check the Guide Gap in reference to Section 9.2. If it is beyond the boundary, adjust the Latch positions.	—
		Gas Spring		Open the guide and unlock the Main Latch. If the Main Latch naturally starts to close, replace the Gas Spring.	—
		Gathering Operating Information		Gathering information when the scanner is operating.	7.4
3	Auto Calibration	Auto Calibration	M6	After cleaning the Scanner run the Auto Calibration Test.	6

(*) Make sure there are no cracks, or chips in the Lower Mirror (Front), Lower Mirror (Back), Cover Glass (Back) before cleaning. Replace the parts if you see any damages.

(*1) For HT-4139-48

3.2 Consumables

Outlined below are the consumables that must be replaced during Routine Maintenance

Consumable List

Order	Part	Replacement Period	Reference	Action	Page
1	Pick Roller	1.0 Million Pages(*1) or 1 year. Whichever comes first		The Customers replace the Consumables	Instruction Manual 2.7 (Replacing the Roller)
2	Separator Roller				
3	Reverse Roller				
4	Fluorescent Lamp	900 Hours	Replace when warning sign appears *2	Maintenance Personnel replaces the Consumables.	8.2.3、8.2.4
5	Imprinting Head ASSY	5.4 Million Pages(*1)	6 Numbers/ Page		8.3.9
6	Separator Clutch	2.0 Million Pages(*1)	Separator Roller Gear		8.2.1
7	Oiles Drymet		Axle bearing of the Separator Roller (4)		8.2.1
8	Oiles Brush		Axle bearing of the Pick Roller (2)		8.2.1
9	Gear (S-P)		Pick Unit Gears		8.3.39
10	Washer 1		Axle bearing of the Separator Roller (2)		8.2.1
11	Washer 2		Axle bearing of the Separator Roller (2)		8.2.1
12	Gear (Reverse 3)		Axle bearing on the Reverse Roller		8.2.2
13	Pick Gear		Gear on the Pick Roller (Including for Model HT-F4139-94)		8.2.1
14	Pick Drive Gear 2		Gear on the Pick Drive		8.2.2
15	Reverse ASSY		Including the Torque Limiter		8.3.16
16	Cover Sheet ASSY				8.3.14
17	Cover Glass ASSY				
18	Ribbon Cassette for Imprinting	When Needed	Red: S-4181 (30,000 Letters)*1 Black: C-4181 (30,000 Letters)*1	The Customers replace the Consumables	Instruction Manual 2.4.2 (Replacing the Roller)
	Ribbon Cassette for Imprinting (Tank)	When Needed	Red: S-4181T(2.0 Million Letters)*3 Black: C-4181T(2.0 Million Letters)*3		
			Dummy: Y-4181(1.0 Million Pages)*1		

Refer to next page

3.2 Please refer to 5.3.3 of the Instruction Manual

5.3.3 Consumables

Consumables for the OCR Scanner are shown in the table below.

No.	Name	Qty	Frequency	Supplier	Remarks
1	Pick Roller	2	One year or Max 1000K sheets (*1)	Sales Company.	Replaced by customer or service personnel
2	Separator Roller	2			
3	Reverse Roller	2			
4	Fluorescent lamp	1 or 2	900hours or Warning of low light intensity (*2)		Replaced by service personnel
5	Imprinting head Assembly	1	About 5400K sheets (6 digits / sheet)		
6	Separator clutch	1	About 2000K sheets		
7	Oiles Drymet LF	4			
8	Oiles Bush	2			
9	Gear(S-P)	1			
10	Washer1	2			
11	Washer2	2			
12	Gear(Reverse3)	1			
13	Pick Gear	1			
14	Pick Drive Gear2	1			
15	Reverse assembly	1			
16	Cover sheet assembly	1			
17	Cover glass assembly	1			
18	Ribbon cassette for imprinting(Normal) Red: S-4181 Black: C-4181	1 (*5)	About 60～300K characters (*3)		Replaced by customer
	Ribbon cassette for imprinting(Tank) Red: S-4181T Black: C-4181T		About 400～2000K Characters (*3)		
	Dummy: Y-4181(*4)		About 1000K sheets		

(*1): Rollers for paper feeding deteriorate its material and lose friction coefficient. Due to this the performance is getting lower. The number of sheets for part replacement is based on the test paper 040-7-4 (A4 landscape). The number might depend on paper size and quality.

(*2): Fluorescent lamp loses light intensity after 900hour lit, deteriorate image signal, and it affects scanning performance. When you see the warning of low light intensity, need to replace lamp within one week.

(*3): Imprinting may be diluted when the number of printing characters approach to the number show below.

Mode	Normal Ribbon (characters)		Tank Ribbon (characters)	
	Standard size	Large size	Standard size	Large size
TYPE1:200dpi	About 300K	About 150K	About 2000K	About 1000K
TYPE2:300dpi	About 150K	About 75K	About 1000K	About 500K
TYPE3:400dpi	About 75K	About 60K	About 500K	About 400K
TYPE4:600dpi	About 75K	About 60K	About 500K	About 400K

(*4): Will be used in case of no-imprinting.

(*5): One of cassettes must be attached.

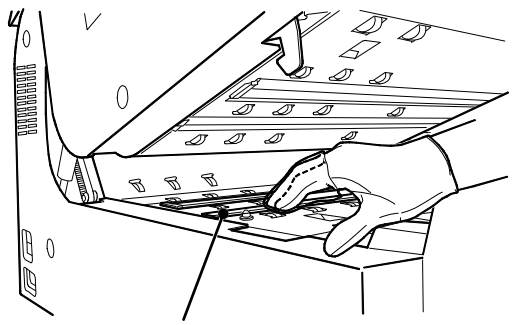
3.3 Cleaning the Scanner

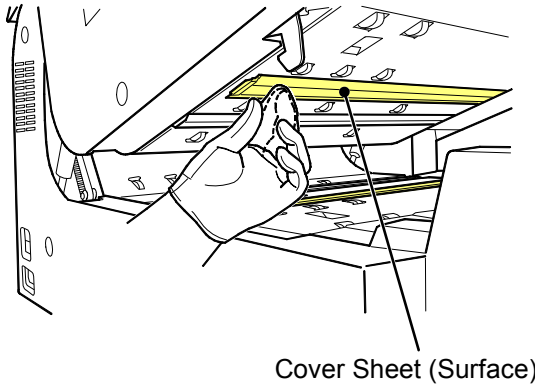
Use fresh cleaners (ex. Gauze, Cotton Swab). The use of dirty cleaners may damage the scanner.
Please take caution when cleaning the Reader Area (Lower Mirror, Cover Glass, Cover Sheet)

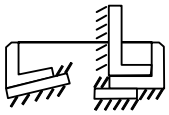
The alcohol level of the Ethanol must be 99.5%

3.3.1 Cleaning the Lower Mirror (Front), the Cover Sheet (Front)

① Use gauze to wipe the Lower Mirror (Front), and the Cover Sheet
② Remove the Cover Sheet from the device as shown in ②. Clean the debris or paper scraps in the inside of the device.



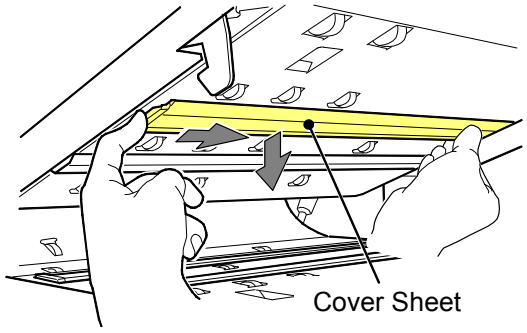


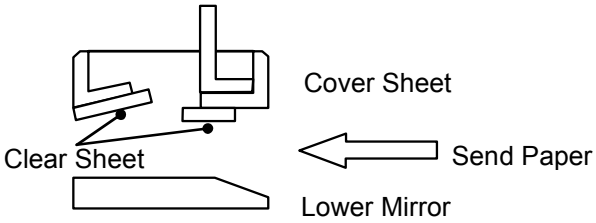


Remove debris and paper scraps in the /// area

Side view of the Cover Sheet (from the left side)

③ Removing the Cover Sheet: Slide the Cover Sheet to the right and pull the Cover Sheet down.
To attach the Cover Sheet, slide it back to the left.
(If the Cover Sheet is attached incorrectly, the fluorescent light could get damaged.





(Cross-section view from the left)

* If there are any damages, chips, cracks, discolorations, scraps on the clear sheet, replace it.

⚠ CAUTION

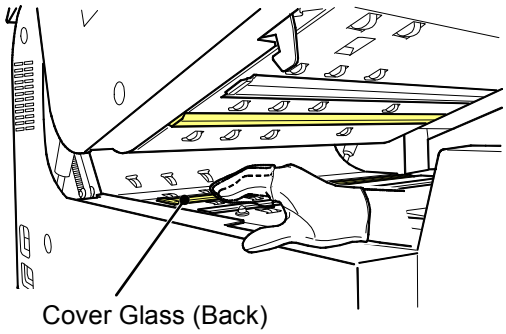
Only use Ethanol.

Note: ・When removing the Cover Sheet, hold it firmly to prevent it falling.
・If the customer is a frequent user, demonstrate it and explain precautions.

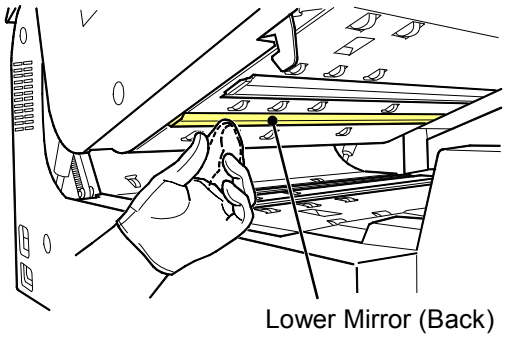
If the fabric from the gauze is left on the Lower Mirror and the Cover Sheet, it may affect the reader.

3.3.2 Cleaning the Lower Mirror (Back), and Cover Glass (Back)

① Use gauze soaked in ethanol to wipe the debris and paper scraps from the Lower Mirror (Back), and Cover Glass (Back)



Cover Glass (Back)
(48-Duplex Model)



Lower Mirror (Back)
(48-Duplex Model)

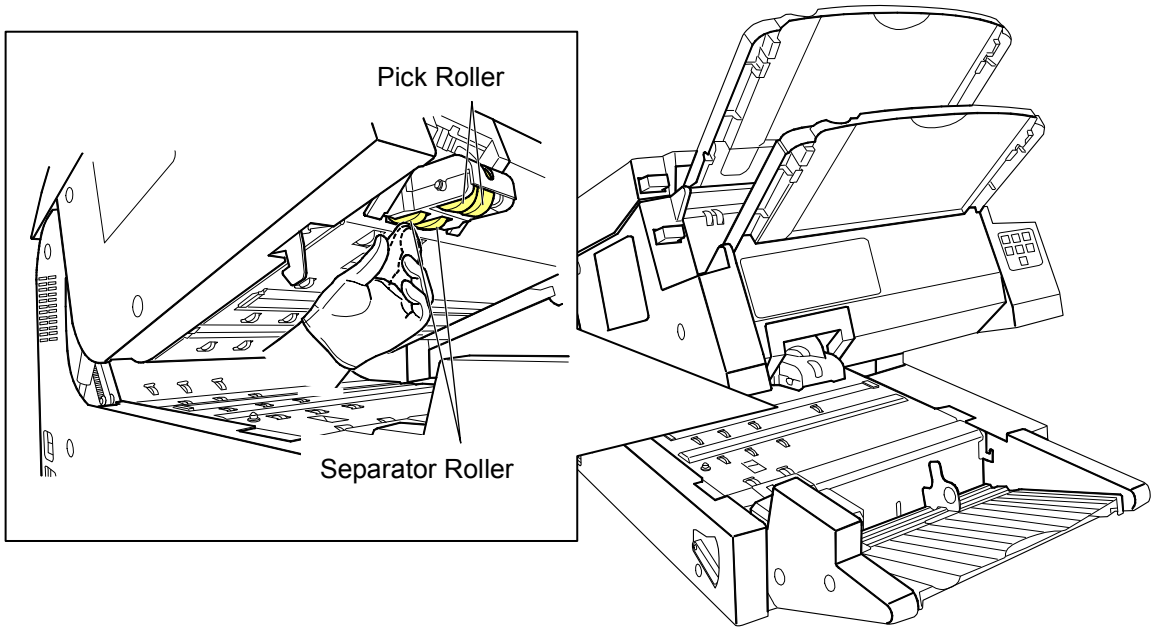
If the fabric from the gauze is left on the Lower Mirror (Back) and Cover Glass (Back) it may affect the reader.

3.3.3 Cleaning the Pick Roller, the Separator Roller, the Reverse Roller

Cleaning the Pick Roller and the Separator Roller

① Use gauze soaked in ethanol to wipe debris and paper scraps from Pick Roller and the Separator Roller

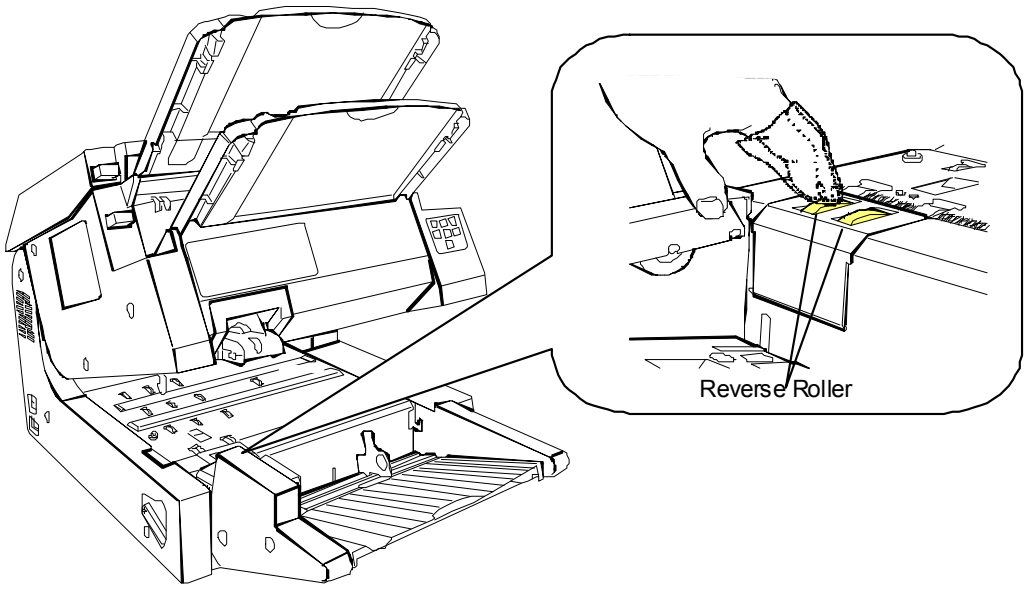
② Inspect the Roller for dirt, wear, or damage



Cleaning the Reverse Roller

① Use gauze soaked in ethanol to wipe the debris and paper scraps from the surface of the Reverse Roller

② Inspect the Roller for dirt, wear, or damage



3.3.4 Cleaning the Drive Roller

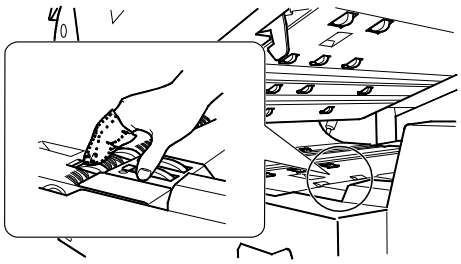
If the Skew and Block accuracy are out of the specification range, check if there are not any debris or paper scraps on the Drive Roller T1~T7
The Drive Rollers are made from polyurethane rubber
Use gauze soaked in ethanol to wipe the debris and paper scraps from the Drive Roller

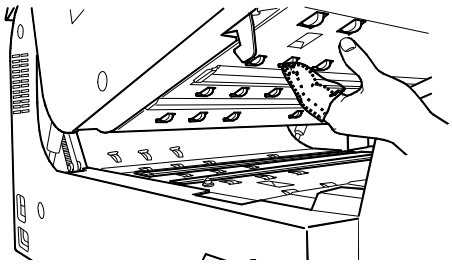
①Inspect the Drive Roller for dirt, wear, or damage

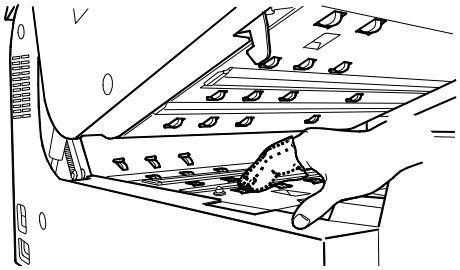
『Note』 Do not damage Roller

3.3.5 Cleaning the Pinch Roller

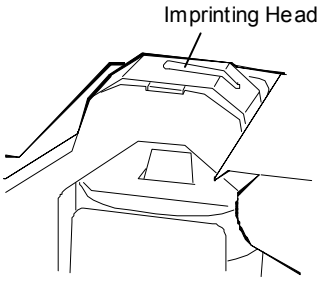
①Pinch Roller T1 is made up of plastic bearing
Use gauze soaked in ethanol to wipe the debris and paper scraps from the Pinch Roller
②Pinch Rollers T2-T7 are made up of metallic bearing
Use gauze soaked in ethanol to wipe debris and paper scraps from the Pinch Roller
③ Inspect the Drive Roller for dirt, wear, or damage







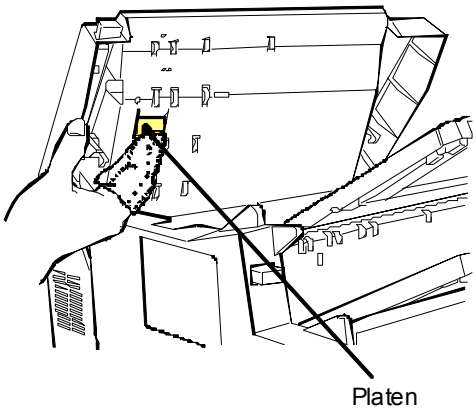
3.3.6 Cleaning the Imprinting Head Pin



Clean debris on the Imprinting Head Pin using the brush.

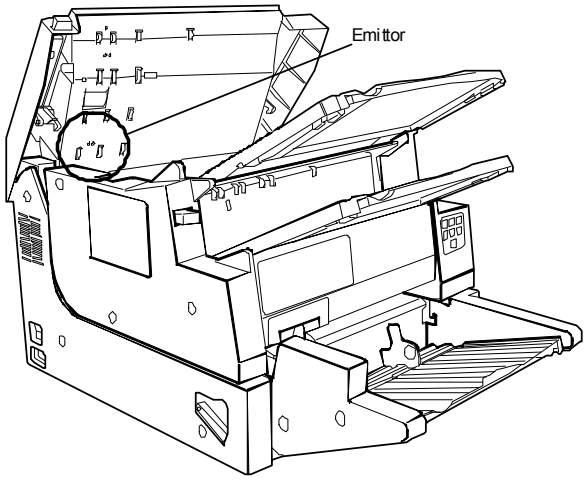
3.3.7 Cleaning Platen

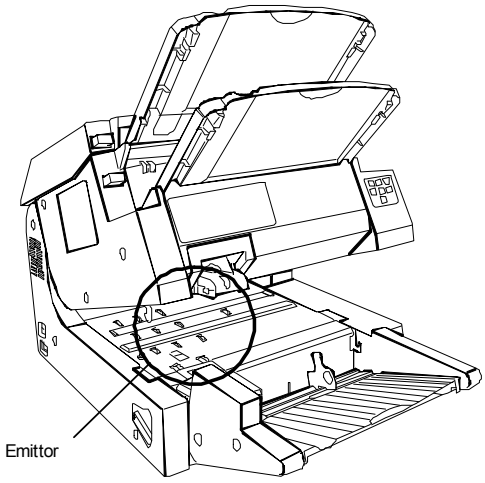
① Use gauze soaked in ethanol to wipe the ink



3.3.8 Cleaning the Photo Sensor (After cleaning the Photo Sensor, run the Auto Calibration Test)

② Use gauze soaked in ethanol to wipe the tip of the Photo Sensor (Glass Part)



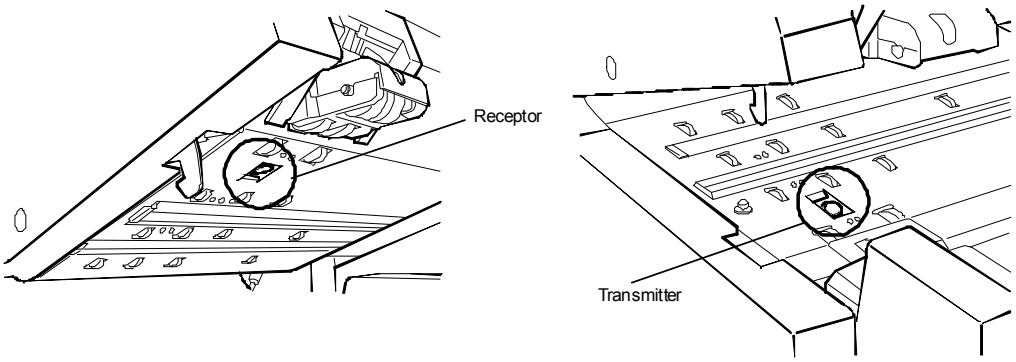


3.3.9 Cleaning the Ultra Sonic Sensor

Use brush to clean the dust off of the Ultra Sonic Sensor (Front)

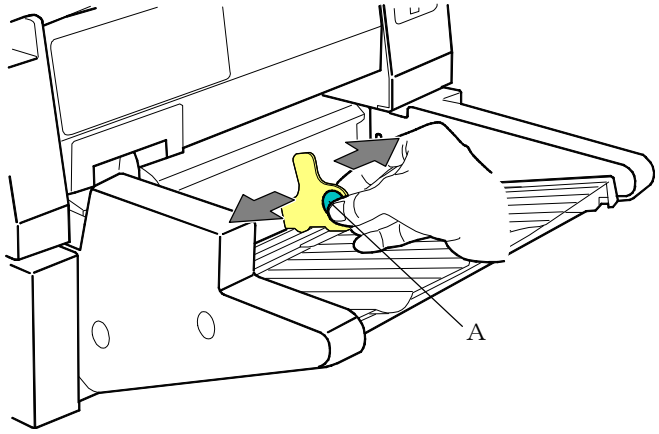
『Note』Do not apply any liquid. Applying resin on the surface of the sensor may change or affecting the performance of the Scanner.

・Do not apply pressure. The sensor may shift and it may cause errors



3.3.10 Cleaning the Hopper Guide

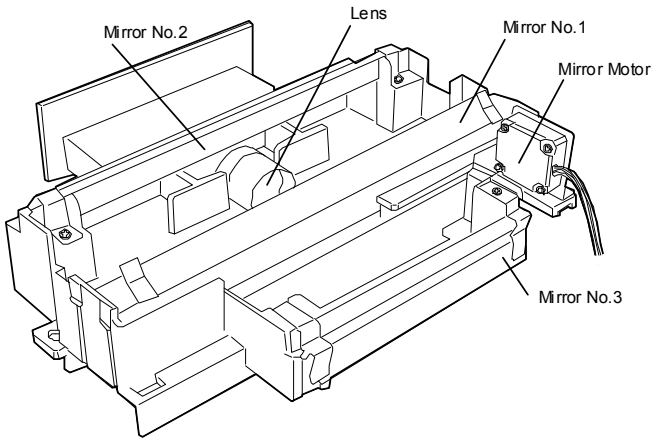
Grab the Part “A” of the Hopper Guide as shown below, and slide it to the direction of the arrows. Check if it slides smoothly.



3.3.11 Cleaning the Scanner ASSY

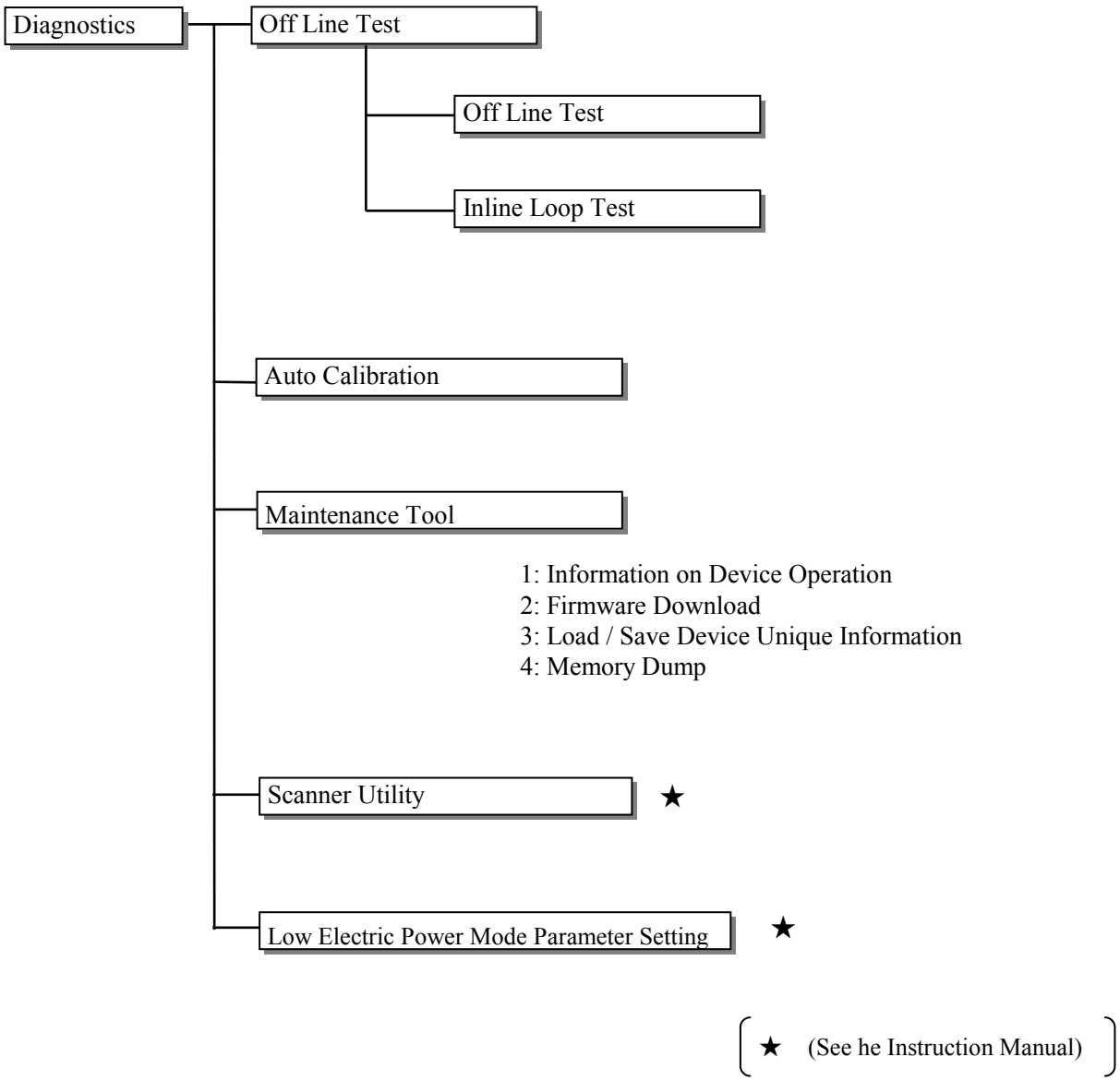
8.3.5 Remove the Scanner ASSY from the device. For instructions, please refer to “8.3.10 Replacing the Scanner ASSY (Back)”. Clean the debris on Mirror No. 1~3 and the Lens using the brush.

Caution: Please refer to “8.3.5 Replacing the Scanner ASSY” and “8.3.10 Replacing the Scanner ASSY (Back)”


Lens
Mirror No.2
Mirror No.1
Mirror Motor
Mirror No.3

4 Diagnostics

HT-4139 has some features to maintain and diagnose the device.



It is important to see section 4.1 and 4.2 when you have problem or replace parts.

Section 4.1 describes diagnostic items for each operation
Section 4.2 describes diagnostic order when parts are replaced.

4.1 Diagnostic Item for each Operation

Refer to the section 4.2 to take a corrective action based on the information described in the table below.

Item (A)	Item (B)	Content	Reference (Sec.4.2)	
Paper Feeding Mechanism	• Photo systems	PC＊＊system error ＊	(B)	
	• DBL	Dual feed Detection error by the PC22	(A)	
	• Ultra Sonic Sensor Systems	Detection error	(C) (V)	
Paper Scanning Mechanism	• Paper error	Scanned image error	(D) (E)	
	• Low quality image	Quality of whole or part image is low		
	• Light intensity error	Error after scanning		
	• Lamp alarm	Lack of light intensity (Replace within 1 week)		
	• Lamp error	Light intensity error (Replace ASAP)		
Parts Replacement	• Photo systems	Maintenance M. 6.6.1	(G) (H) (J)	
	• Fluorescent lamp	Maintenance M. 8.2.3	(J)	(Front)
	• Inverter (Lighting tool)	Maintenance M. 8.3.11	(K)	
	• Scanner ASSY	Maintenance M. 8.3.5	(L)	
	• Fluorescent lamp	Maintenance M. 8.2.4	(J)	(Back)
	• Inverter (Lighting tool)	Maintenance M. 8.3.12	(K)	
	• Scanner ASSY ASSY	Maintenance M. 8.3.10	(L)	
	• P/K MAIN (CPS619 P/K)	Maintenance M. 8.3 Maintenance M. 8.3.2	(M) (N)	
	DRV (CPS614 P/K)	Maintenance M. 8.3.3	(O)	
	SS (CPS618 P/K)	Maintenance M. 8.3.4	(W)	
	• Pick roller	Replaced by end user or service personnel following the Instruction manual	(P)	
	• Separator Roller		(Q)	
	• Reverse Roller		(R)	
	• Imprinting ASSY	Maintenance M.8.3.9	(S)	
	• Power Supply (PS ASSY)	Maintenance M.8.3.1	(T)	
	• Control Panel	Maintenance M.8.3.20		
Imprinting Print Head	• Improper print position		(F)	
	• Not clear			
	• Print error			
Maintenance		Maintenance M.3	At the maintenance	

4.2 The diagnosis order when parts are exchanged

No.	Item	Machine failure						Replacing Pats																			periodic check	Reference No.
		(A) Photo systems(PC22)	(B) Photo systems(except for PC22)	(C) Ultra Sonic Sensor systems	(D) Paper Scanning Mechnism	(E) Image(color, gray scale etc)	(F) Imprinting	(G) PC22 (Emission)(Sensor)	(H) Photo Sensor (Emission)(Sensor)	(I) Reflection Sensor	(J) Fluorescent lamp(ASSY)	(K) Inverter(Fluorescent lamp)	(L) Scanner ASSY	(M) MAIN PK CPS619 P/K) (*1)	(N) MAIN PK CPS619 P/K) (*2)	(O) DRV P/K (PS614 P/K))	(P) Pick roller	(Q) Separator Roller	(R) Reverse Roller	(S) Imprinting ASSY	(T) Power Supply PS ASSY)	(U) Motor/Belt	(V) SS-Sensor	(W) SS CPS618 P/K)	(X) USB-Cable			
1	Off Line																											5
1.1	Off Line Test																											5.3
1.2	Inline Loop Test																											5.4
2	Host PC																											6
2. 1	Auto Calibration	3	3	3	3	3		2	2	2	2	2	2		3	2							2	2			4	6.1
3	Maintenance Tool																											7
3. 1	Information on Device Operation																1	1	1								1	7.1
3. 2	Firmware Download													3 *1	2 *1													7.2
3. 3	Load / Save Device Unique Information													1 4														7.3
3. 4	Memory Dump																											7.4
4	Checking・Cleaning・ t ・Replacing																											
4. 1	Checking	1	1	1	1	1	1										*	*	*	*							2	3
4. 2	Cleaning	2	2	2	2	2	2	*	*	*	*	*	*				*	*	*	*							3	3.3
4. 3	t	*	*	*	*	*	3										*	*	*	*		2					4	9
4. 4	Replacing	4	4	4	4	4		1	1	1	1	1	1	2	1	1	2	2	2	1	1	1	1	1	1	1		8

The numbersin the table are priorities to check.（* : Perform when it is necessary ）

There are detectors shown below.

PC22 ASSY(Emission)(Sensor)---PC22

Photo Sensor r (Emission)(Sensor)---PC11 PC20 PC51 PC52

Reflection Sensor ---PC21 PC31 PC41 PC42 PC43

Note 1: Perform when it is necessary. (In case maintenance parts have some notes.)

Note 2: Refer to the replacement procedure of the MAIN P/K ASSY -1(next sheet)

Note 3: Refer to the replacement procedure of the MAIN P/K ASSY -2 (If the procedure-1 does not work)

Replacement Procedure of MAIN P/K ASSY (CPS619) -1-

(1) Before replacement save device unique information by following the procedure described in XXXXX.
(2) Power off the device.
(3) Replace the MAIN P/K ASSY (CPS619). Refer to “8.3.2 MAIN P/K ASSY (CPS619)”
(4) Power on the device. If device control program is attached to the maintenance part, download the firmware.
(5) Power cycle the device. (Off and On)
(6) Load the device unique information to the P/K by following the procedure described in XXXXX.
(7) Power cycle the device to enable the information.
(8) Conduct scanning test and confirm device operation using both sides of sheets.

Replacement Procedure of MAIN P/K ASSY (CPS619) -2- (When problem can not be fixed by the procedure -1-.)

(1) Replace the MAIN P/K ASSY (CPS619). Refer to “8.3.2 MAIN P/K ASSY (CPS619)”
(2) Power on the device. If device control program is attached to the maintenance part, download the firmware. Refer to “7.2 Down load”
(3) Power cycle the device. (Off and On)
(4) Set the operation information by the scanner utility. (See 2.6.1 Operation Parameter Setting of the Instruction Manual) Put assumed number or default value for the number of sheet feed of the Pick Roller, the Separate Roller, the Reverse Roller, and lamp lit time. And also set the parameter of the Low Power Consumption mode.
(5) And also set the parameter of the Low Power Consumption mode. (See 3.1 Parameter Setting for Power Save Mode of the Instruction Manual)
(6) Run the Auto Calibration program.
(7) Conduct scanning test and confirm device operation using both sides of sheets.

5 Off Line Operation

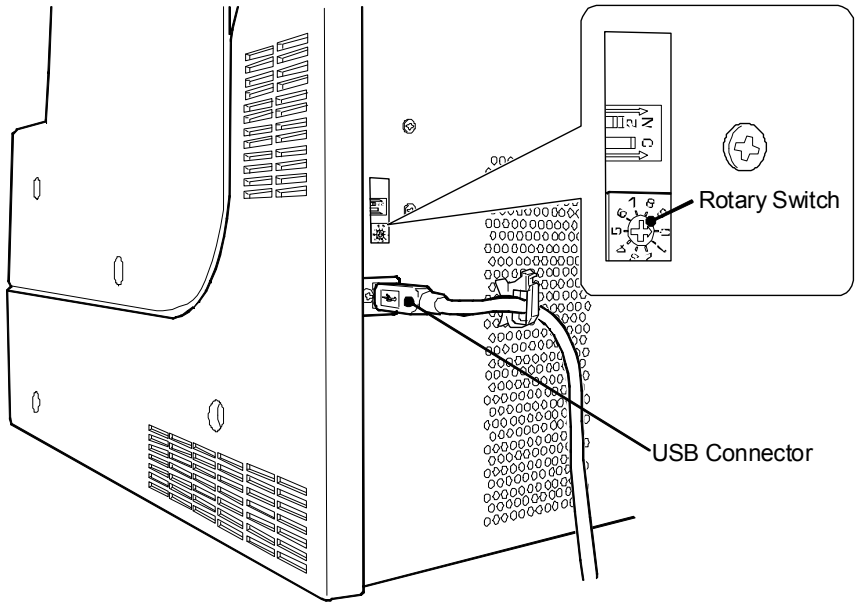
5.1 Setting Switch

Power off the device and then set the rotary switch to 8 or 9. After operations set it zero(0) again.

5.2 Operation Item

No.	Operation Item	Feature Ref.	Chapter
1	Off line Test	Scan the test sheets and compare scanned data with the data stored in the device. （TEST SHEET 040-7-4）	5.4
2	Inline Loop Test	Repeat IPL (Initial Program Load) operation, mainly used in manufacturing/QA process.	5.5

No.	Operation Item	Operation Ref.	LED	
			Power LED	Status LED
1	Off line Test	Set the switch 8 and power on the device.		
2	Inline Loop Test	Set the switch 9 and power on the device		



5.3 Off Line Test

Power LED	Status LED	Operation
		(1) Set the switch 8 and power on the device. At this moment no sheets should be put on the Input Tray
		
		
		(2) When the Status LED blinks slowly put the test sheet (No. 040-7-49 on the Input Tray. The separator lifts up and start scanning. During scanning the LED becomes off. When all sheets are scanned the LED brinks slowly.
		
		(3) Error does not make any change. To recover error, open covers for feed and ejection part and remove jammed sheets and put sheets on the Input tray.
		(4) When the test is completed power off the device.

5.4 Inline Loop Test

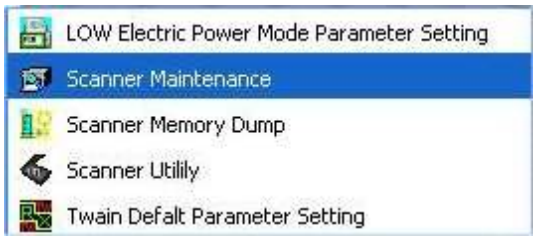
Power LED	Status LED	Operation
		(1) Set the switch 9 and power on the device.
		
		During the Inline Loop test the Status LED blinks fast. If error occurs the Status LED lit solidly. (Refer to section 2.1)
		(2) When the test is completed power off the device.

6 OCR Scanner Auto Calibration

The Auto Calibration checks the Photo Amplifier, the PC22N, the UltraSonic Sensor, the Hardware(Image Distortion Check), and the Sheet feeding speed with one simple operation.

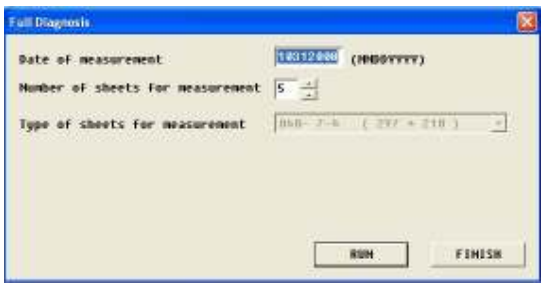
*Preparation: You need to have at least 21 Test Sheets (040-7-4) which is included in the device package.

6.1 Procedure for Auto Calibration



Run the software “Scanner Maintenance”.

1 Press “START” button
2 Press “All Programs”
3 Select “HT-4139 Image Scanner”
4 Select “Scanner Maintenance”



(1) “Date of measurement”: Date is transferred from the PC and displayed on the screen automatically.

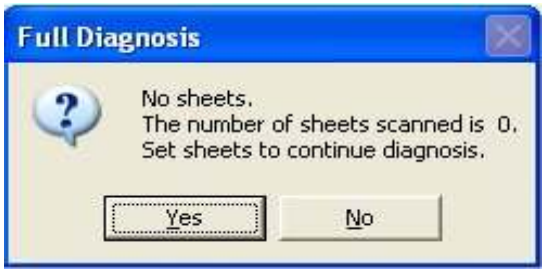
(2) “Number of sheets for measurement”: Put “5” for this.

(3) DO NOT PUT ANY SHEETS ON THE TRAY FOR THE “PHOTO AMPLIFIER” TEST

(4) Press “RUN” Button. The Photo Amplifier Test will Start



(5) The “Photo Amplifier” Test is Running

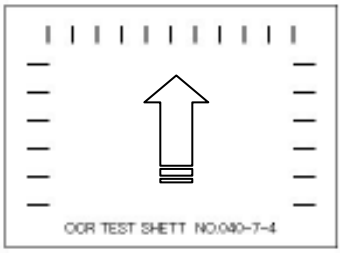


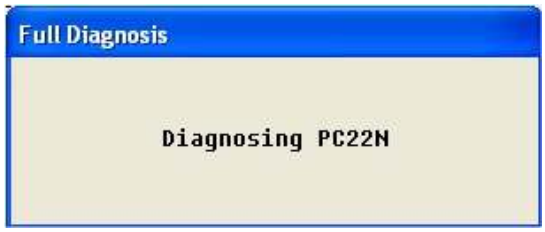
(6) When the left screen pops up, Please add 21 SHEETS OR MORE on the Tray.

(7) Press “YES”.
“PC22N”, “UltraSonic Sensor”, and “Hardware” Test will Start

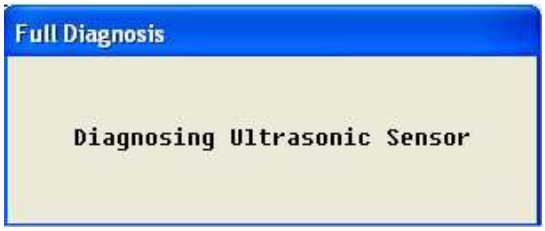
CAUTION: IF THERE ARE NOT ENOUGH PAPERS ON THE TRAY THE LEFT SCREEN WILL KEEP POPPING UP.

CAUTION: MAKE SURE THE DIRECTION OF THE PAPER IS THE SAME AS THE PICTURE BELOW





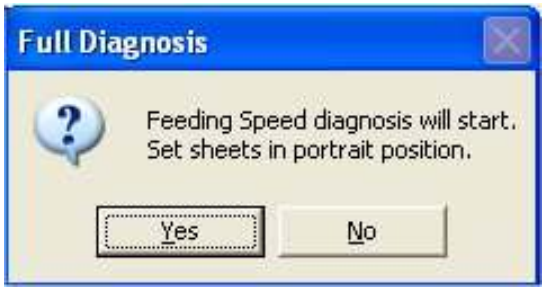
(8) “PC22N” Test is Running



(9) “UltraSonic Sensor” Test is Running.



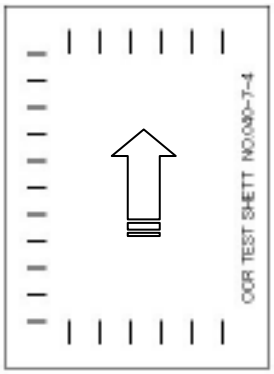
(10) “Hardware” Test is Running.



(11) When the Left Screen pops up, set Paper in the **PORTRAIT** position.

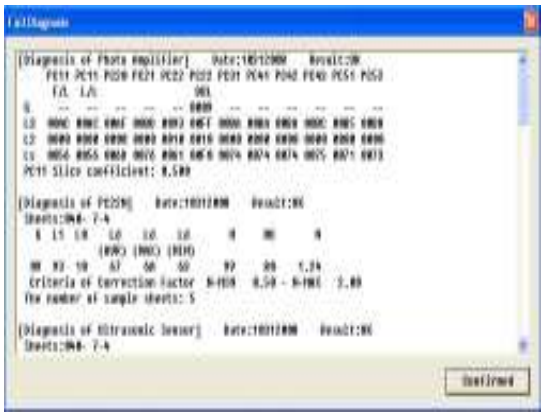
(12) Press "Yes". The "Feeding Speed" Test will Start.

CAUTION: MAKE SURE THE DIRECTION OF THE PAPER IS THE SAME AS THE PICTURE BELOW





(13) "Feeding Speed" Test is Running



(14) When the Left Screen pops up, it will show the Results of the Auto Calibration

(15) Scroll down the slide bar and check the results of the Auto Calibration for the "Photo Amplifier", the "PC22N", the "UltraSonic Sensor", the "Hardware", and the "Sheet Feeding Speed" and confirm that all Results are "OK"

(16) If the Results are "OK" the test is finished. Press "Confirmed"

Caution: In case of failure that could not be adjusted by the Auto Calibration, investigate the causes and fix the issue to pass the Auto Calibration, or the device will not work normally.

Caution: If the Test Sheet is REJECTED check the DIRECTION OF THE SHEET for each test.

6.2 Explanation of each Auto Calibration and Corrective Actions

Test-1: Auto Calibration of Photo Amplifier

G: Gain, L2: Dark Level, L3: Light Level, Ls: Slice Level

The "L" is the slice level of light / dark judgment determined by L2 and L3.

Check Items	Photo Sensor Number	Specifications (hex)	Remarks
L3 (Light Level)	PC11,20,21,31,41,42,43,51,52	20 ~ F0	
	PC22	30 ~ FF	
	PC22(DBL)	30 ~ FF	
L2 (Dark Level)	PC11,20,21,31,41,42,43,51,52	00	
	PC22	01 ~ 30	
	PC22(DBL)	01 ~ 30	

In case it is out of the specifications, cleaning or replacing the parts may be required.

Test-2: Auto Calibration of PC22N

G: Gain, L1: Light Level, L0: Dark Level, Ld: (Dark Level interrupted by sheet),

M: measured transmissivity, MO: reference of transmissivity

Check Items	Specifications
N (correction factor)	0.5 ~ 2.0 (normal 1.0)

In case it is out of the specifications, cleaning or replacing PC22N may be required.

.

Test-3: Auto Calibration of Ultrasonic Sensor

Levels of the UltraSonic Sensor under each conditions

Mark	Gain value	Sensor Output	Sheet	Meaning of measured data
SS0	0001 (x1)	No	No	Level without Sensor output (offset)
SS1	0001 (x1)	Yes	No	Sensor output
SS2	Best gain by Auto Calibration	No	No	Offset at the best gain
SS3	Best gain by Auto Calibration	Yes	No	Sensor output at the best gain
SSP	Best gain by Auto Calibration	Yes	Yes	Sensor output when the light is interrupted by the sheet (040-7-4: 72kg paper) in the diagnosis. --- < around 0060~00C0 >hex

Set the gain value and the threshold value to detect multiple sheet feeding at the best level.

With the 1st sheet, adjust the best gain that makes SSP (0060hex ~ 00C0hex). (Gain: 0001 ~ 0007)

With 2nd sheet and later, set the threshold value with which detect multiple sheet feeding based on the best gain.

(threshold: 004Bhex ~ 00F0hex)

The threshold value for actual detection will be corrected with the Auto Calibration results.

Test-4: Auto Calibration of Hardware (Image Distortion Check)

Read 11 " | " marks at the top edge of the paper, displays reference values(reference coordinates) and measured values (Sensor coordinates).

At the recognition of characters, the marks are used to correct image magnifications (distortion).

In case of failure:

(1) Understand the issue with the diagnostic results.
In case both sides are measured simultaneously, decide which side is not good and check if the sheet is not contaminated. And try to read it several times.

(2) Check images
Get images and check if there are noise or abnormality.

(3) Clean optical systems
During the check image (2), if there is noise and/or thin spots in the image, clean the scanning mechanism.

(4) If it still failed after the cleaning, replace the scanner assembly and the MAIN_P/K_ASSY.
Contamination of the scanning mechanism and the scanner assembly might be a cause of noise and thin spots, etc.

Test-5: Auto Calibration of Sheet Feeding Speed

Read 11 " | " marks and detects the speed difference in the direction of paper feeding between the reference speed and measurement results and adjusts the feeding speed.

In case of failure:

Clean the T1 roller. Ensure there are no papers jammed in the parts.

Result (+) : Feeding speed is faster than the reference speed.
--- Increased Roller diameter caused by adhered dust, etc.

Result (-) : Feeding speed is slower than the reference speed.
--- Abnormality of paper feeding, paper slip, etc.

7 Maintenance Tools

The Maintenance Tool supports several features shown below.

(1) Display information on device operation such as the number of sheets that have been fed.

(2) Download firmware:

(3) Load / Save device unique information of each device

(4) Collect information stored in the memory.

(5) Reboot the device

(6) Display error information

(7) Work Information Viewer

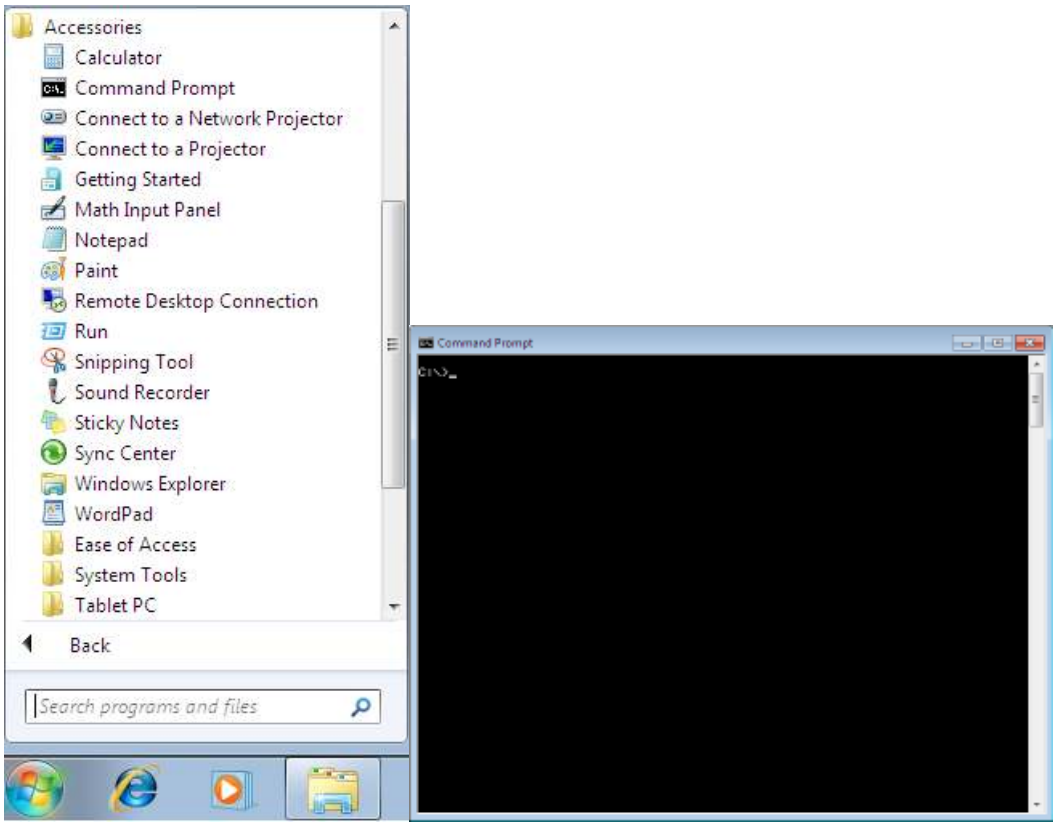
(8) Full Diagnosis

< In case of Memory Dump>
Do not reboot the device, which initializes / clear the information.

< Other than Memory Dump>
Power on the device first and then switch on the host.
Operate the Maintenance Tool when the device is ready.

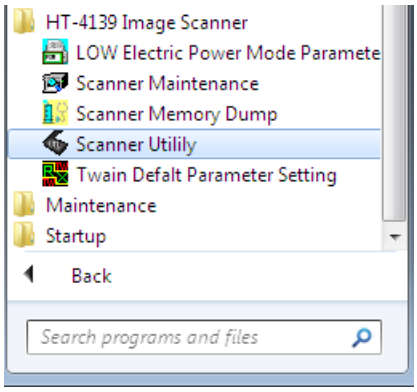
Most features of the Maintenance Tool can be operated by command prompts.
Command prompts can be started as follows. ［Start］-[All Programs]-[Accessories]-[Command Prompt]


Accessories
Games
HT-4139 Image Scanner
Maintenance
Startup
All Programs
Back
Search programs and files
Shut down
Search programs and files

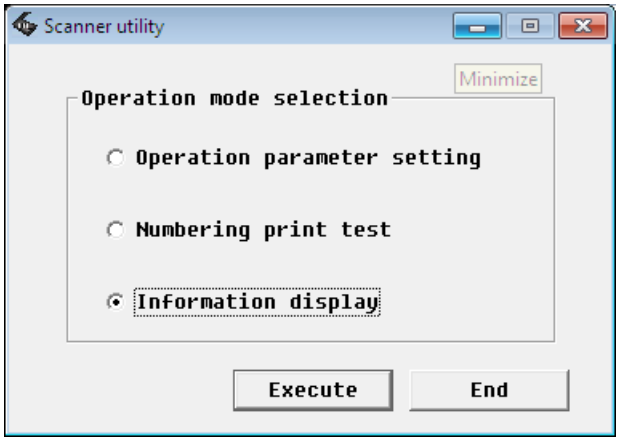

Accessories
Calculator
Command Prompt
Connect to a Network Projector
Connect to a Projector
Getting Started
Math Input Panel
Notepad
Paint
Remote Desktop Connection
Run
Snipping Tool
Sound Recorder
Sticky Notes
Sync Center
Windows Explorer
WordPad
Ease of Access
System Tools
Tablet PC
Back
Search programs and files
Command Prompt

7.1 Display Information on Device Operation

Click the Scanner Utility as follows. ［Start］-[All Programs]-[HT-4139 Image Scanner]



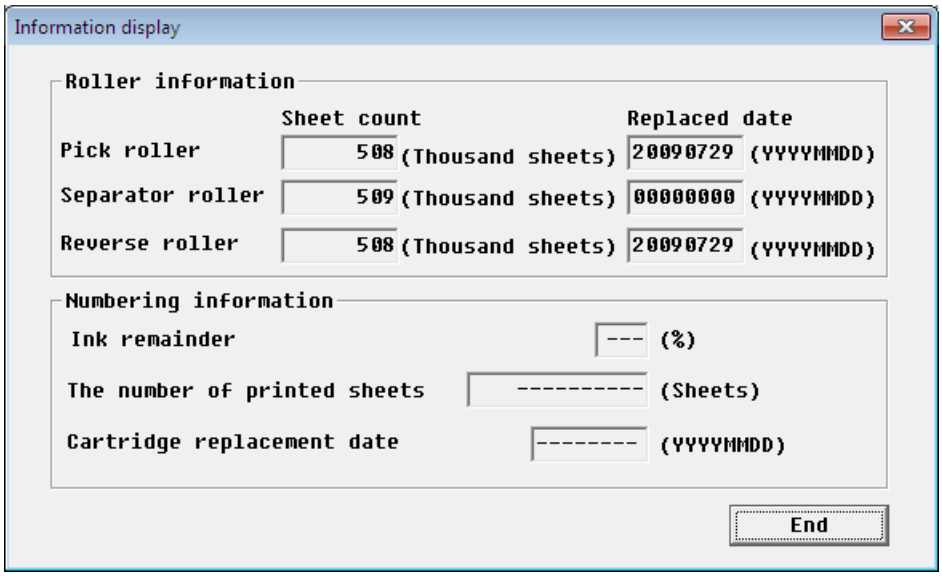
Click the [Execute] button in the Scanner Utility dialog.



Information on the Device operation will be displayed.

※ The number of sheets fed by Pick roller / Separator roller / Reverse roller will be displayed.

※ Pick roller / Separator roller / Reverse roller



NOTE: Refer to the Instruction Manual Chapter 2.6 Scanner Utility for the setting of information on the device operation when you replace rollers.

7.2 Download

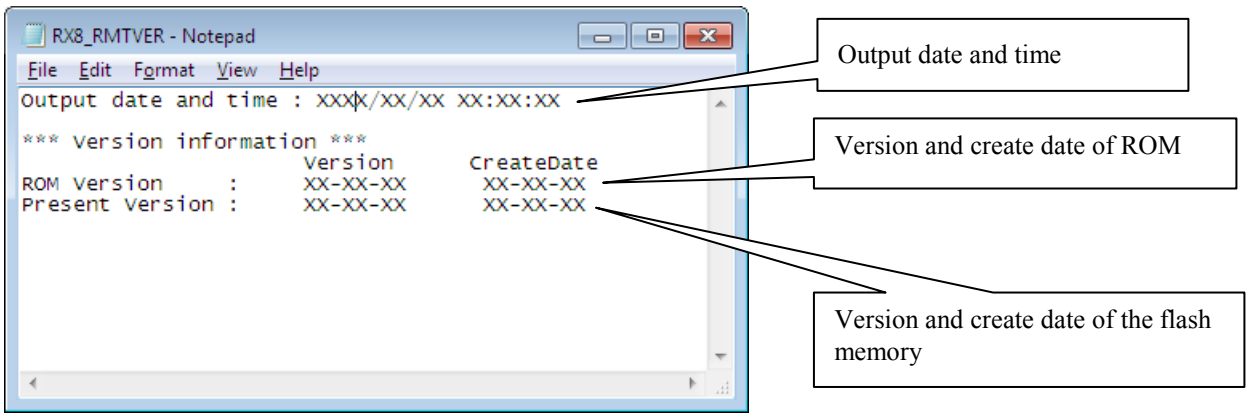
7.2.1 Display of Firmware Version

To display firmware version of the control program.

(1) Start command prompt

(2) Execute C:\OCR32\DIAG32\OCRDMN32_RMT.exe 12 1 1

(3) Open C: \OCR32\ETC32\RX8_RMTVER.TXT with the Note Pad and confirm.



Refer to section 7.6 Error Information if you see C: \OCR32\ETC32\RMTERR.TXT

7.2.2 Scanner Program Download

Update the firmware of the device.
NOTE:
Make sure the download file is correct before downloading.
If you download wrong file the device may not work.

Save the device unique information before downloading.
(1) Save the download file in the disk.
(For example: D: \ETC\OCR_RX8F.OCR)
(2) Start command prompt
(3) Execute C:\OCR32\DIAG32\OCRDMN32_RMT.exe 12 1 2 D:\ETC\OCR_RX8F.OCR
The name of download file is the same as the file name saved at (1)
(4)After downloading, make sure the version of firmware is correct.

Load the device unique information after downloading.

Refer to section 7.6 Error Information if you see C:\OCR32\ETC32\RMTERR.TXT

7.3 Load / Save Device Unique Information

7.3.1 Save Device Unique Information (save the information into the disk.)

(1) Start command prompt
(2)Execute C:\OCR32\DIAG32\OCRDMN32_RMT.exe 12 2 1 C:\OCR32\ETC32\RX8_U1.OCR

Refer to section 7.6 Error Information if you see C:\OCR32\ETC32\RMTERR.TXT

7.3.2 Load Device Unique Information

Caution : Execute it very carefully because Unique Information is loaded into the device.

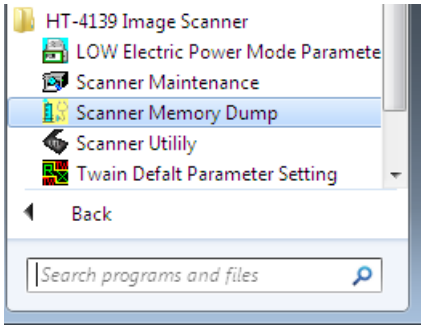
(1)Start command prompt
(2)Execute C:\OCR32\DIAG32\OCRDMN32_RMT.exe 12 2 2 C:\OCR32\ETC32\RX8_U1.OCR

Refer to section 7.6 Error Information if you see C:\OCR32\ETC32\RMTERR.TXT

7.4 Memory Dump

To get information from the memory to analyze problem when something abnormal happens.

［Start］-[All Programs]-[HT-4139 Image Scanner]-Scanner Memory Dump

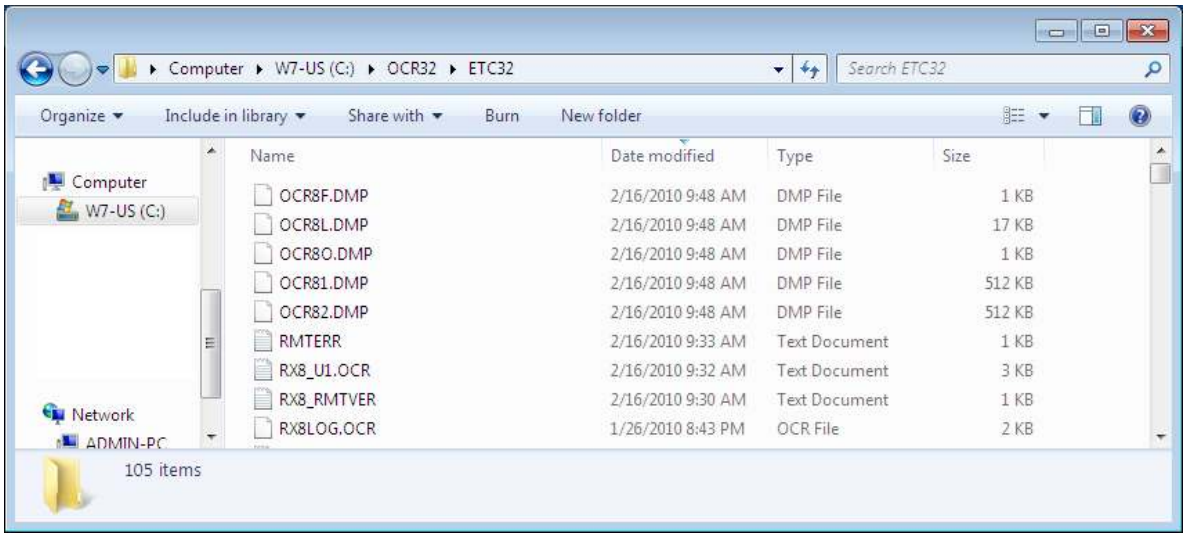


Or

(1)Start command prompt

(2)Execute C: \OCR32\DIAG32\OCRDMN32_RMT.exe 12 3

When the dump information is got, OCR8*.DMP in the C: \OCR32\ETC32 folder will be created with the current time when you correct information successfully.



Refer to section 7.6 Error Information if you see C: \OCR32\ETC32\RMTERR.TXT

7.5 Reboot

To reactivate the device.

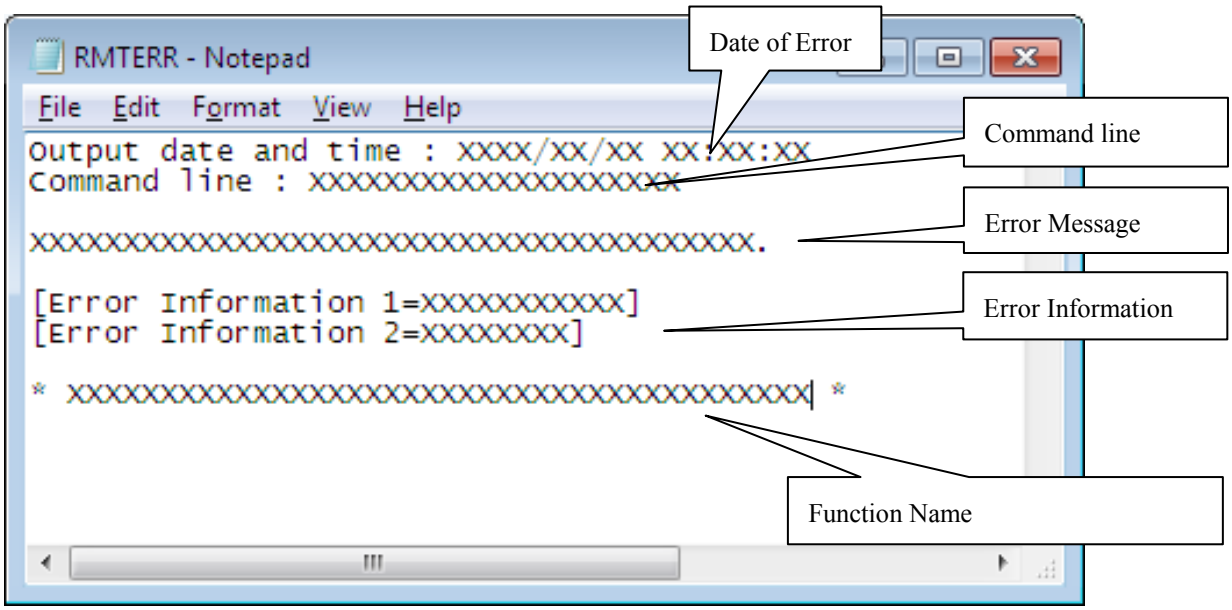
(1)Start command prompt
(2)Execute C:\OCR32\DIAG32\OCRDMN32_RMT.exe 12 4 1

Refer to section 7.6 Error Information if you see C:\OCR32\ETC32\RMTERR.TXT

7.6 Error Information

To display the error information.

Open C:\OCR32\ETC32\RMTERR.TXT with the Note Pad.



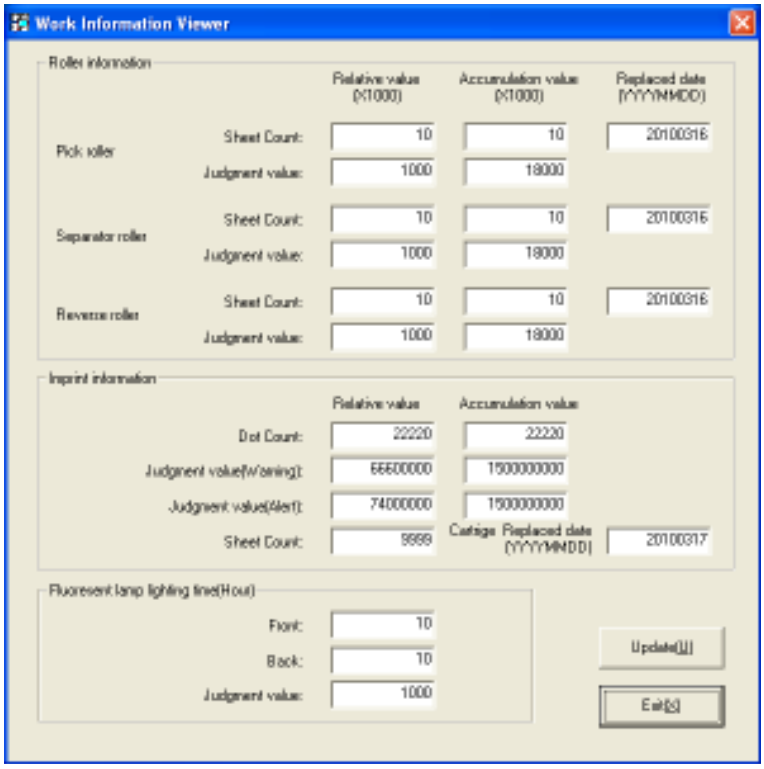
Error Information 1 : Error classification code
Error Information 2 : Error code detected by the systems
Error Information 3 : File name, Key name(Not always shown)

7.7 Work Information Viewer

(1)Start command prompt or Explore

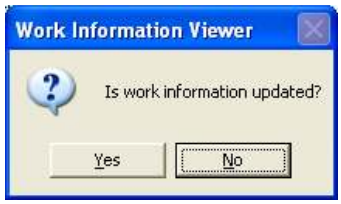
(2)Execute C: \OCR32\DIAG32\WorkinfView_Rx8

Information on the rollers, imprinting, fluorescent lamp, and lighting time will be displayed.

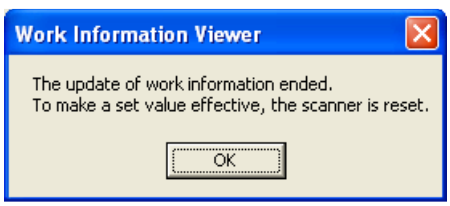


If you only refer to the information, click the “Exit” button.

If you want to modify the information because of part replacement or other reasons, position the cursor to the cell you want to modify and input new data and then click the “Update” button.



When you modify data, click the “Yes” button.
The device will be reset when it finishes successfully.
Click the “OK” button in the dialog below. The application will be finished.



7.8 On-line Diagnostic

The on-line diagnostics operated by the host and diagnostic the device condition. The main purpose is to check the device condition after part replacement.
The on-line diagnostic support functions shown below.

- Skew accuracy measurement : Measure amount of skew and variation of skew
- Block accuracy measurement : Measure block accuracy
- Scanning accuracy measurement : Measure scanning accuracy of optical systems
- Display of calibration information : Display of calibration information（device unique data）
- Information display of Photo / Video / SW / Ultra sonic sensor : Display level and status of each items in real time and these will be helpful for failure analysis.
- Mechanical operation : Operate mechanical parts such as motors and solenoids.
- Calibration of scanner : Get device unique data on photo and optical systems and save them.
- Measurement of USB data transfer rate : Measure data transfer rate of the USB.

Starting Up

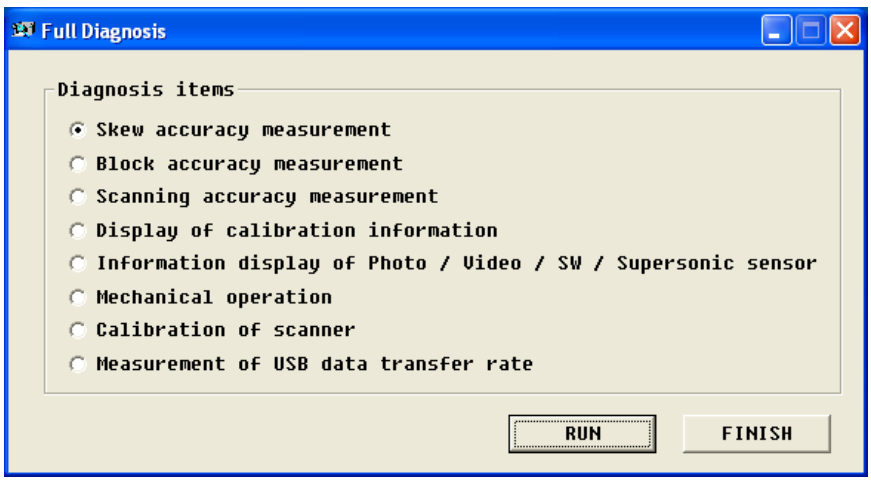
The program of the on-line diagnostics is installed in the host.

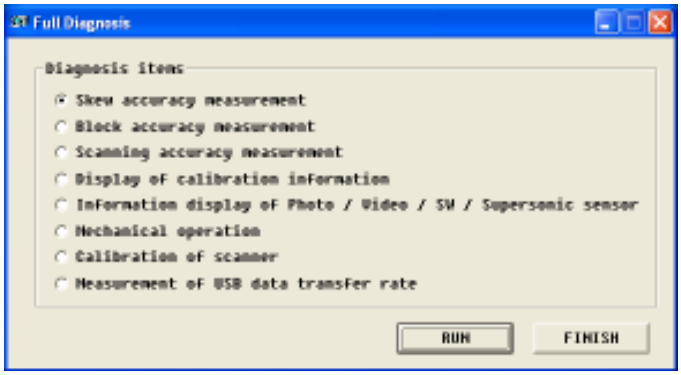
Power on the device first and then power on the host.

- In case of the Windows XP and the Windows Vista

Execute “C:¥OCR32¥DIAG32¥OCR8MN32_ALL”.

Dialog box of the “Full Diagnosis” (on-line diagnostics) will be pop up.

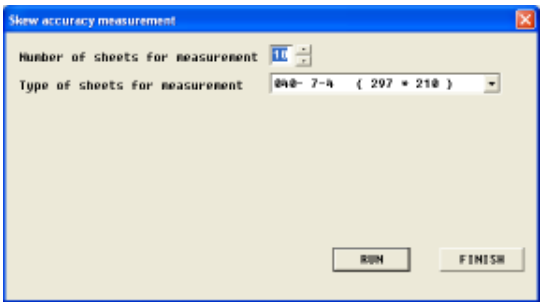




Select the diagnosis item and click the “RUN” button.

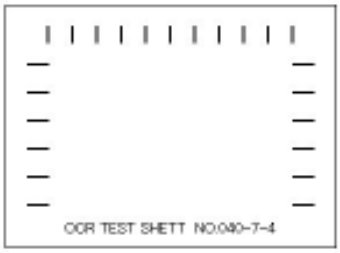
Example of Windows XP will be used for following explanation. (Difference is only layout of screens)

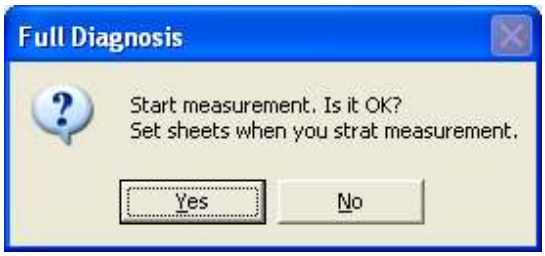
●7.8.1 Skew accuracy measurement



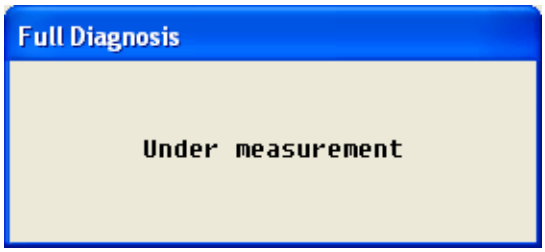
(1) Set 10 test sheets (040 – 7 – 4) on the input tray and click the “RUN” button.

CAUTION: MAKE SURE THE ORIENTATION OF THE PAPER IS THE SAME AS THE PICTURE BELOW

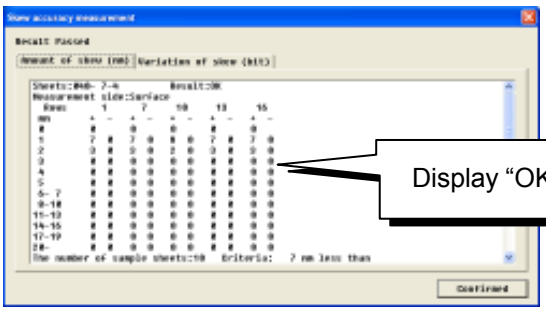




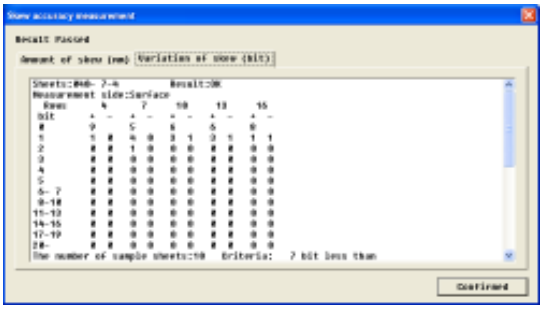
(2) Click the “Yes” button.



(3) Measurement will start.



(4) Measurement results of skew will be displayed. (mm)



(5) Click the “Variation of skew(bit) “ for the display of calibration information

(6) Click the “Confirmed” button.

(7) Return to the dialog (1), and click the “Finish” button.

When “NG” is displayed, check below.
(1) The sheets are normal?
(2) The rollers are not contaminated?
(3) If the Pinch Roller is contacting partially?
(4) Roller wear of the sheet separation mechanism?

However ”NG” is displayed, if more than 80% of the sheets have passed, judge it is OK.

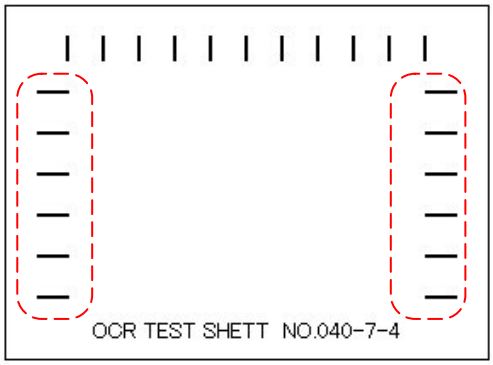
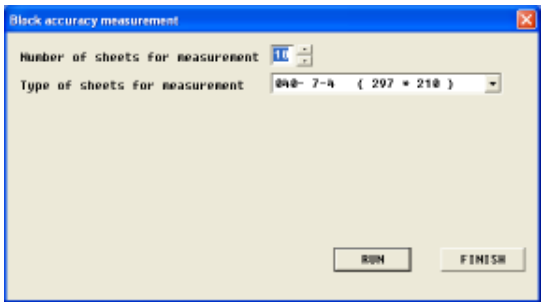


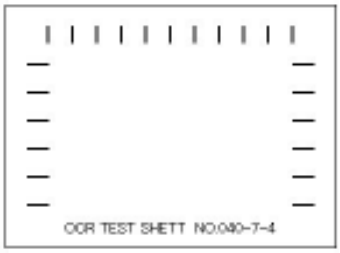
Fig. 1 Position of recognition

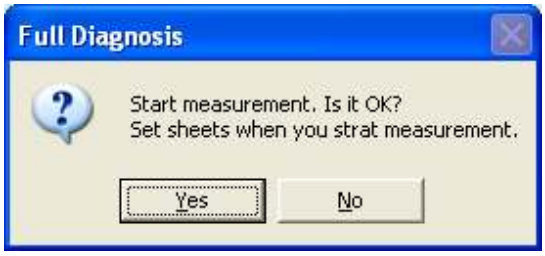
7.8.2 Block accuracy measurement



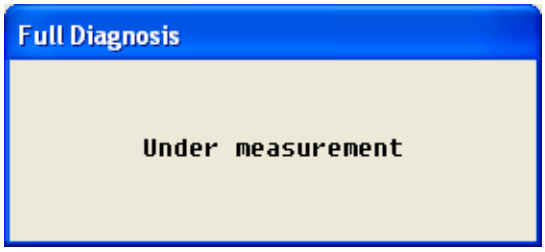
(1) Set 10 test sheets (040 – 7 – 4) on the input tray and click the “RUN” button.

CAUTION: MAKE SURE THE ORIENTATION OF THE PAPER IS THE SAME AS THE PICTURE BELOW

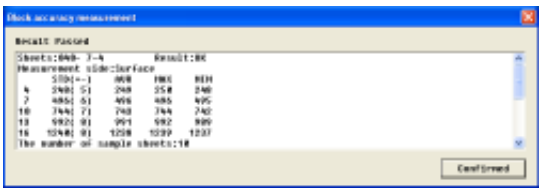




(3) Click the “Yes” button.



(3) Measurement will start.



(4) Display results after scanning specified number of sheets.

(5) Click the “Confirmed” button.

(6) Return to the dialog (1), and click the Display of calibration information button.

When “NG” is displayed, check below.
(1) The sheet is normal? (Not extended or shrunk?)
(2) The rollers are not contaminated?
(3) If the Pinch Roller is contacting partially?
(4) Roller wear of the sheet separation mechanism?

However ”NG” is displayed, if AVR value is within STD, judge it is OK.

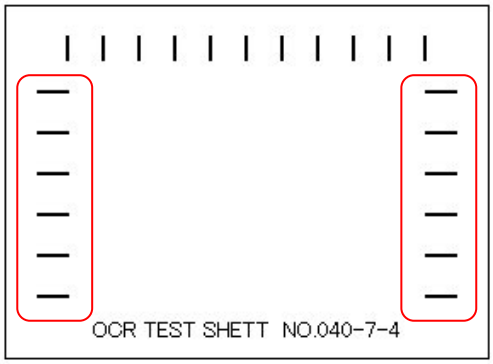
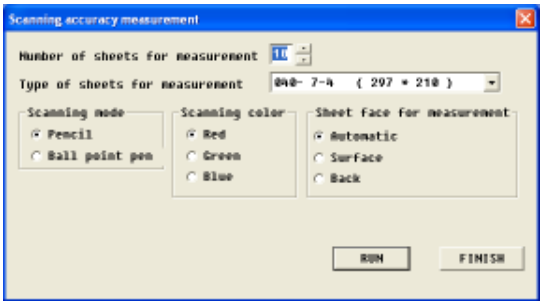


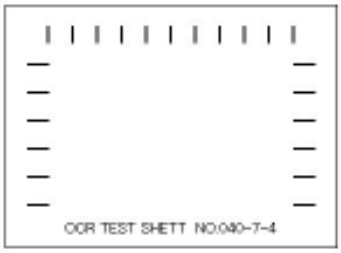
Fig.2 Position of recognition

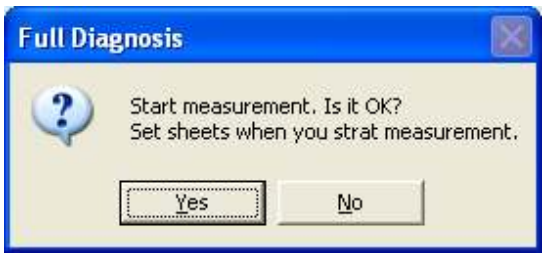
7.8.3 Scanning accuracy measurement



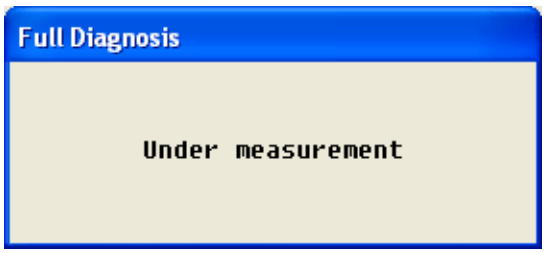
(1) Set 10 test sheets (040 – 7 – 4) on the input tray and specify the ”Scanning mode”, the “Scanning color”, and the “Sheet face for measurement” and then click the “RUN” button.

CAUTION: MAKE SURE THE ORIENTATION OF THE PAPER IS THE SAME AS THE PICTURE BELOW

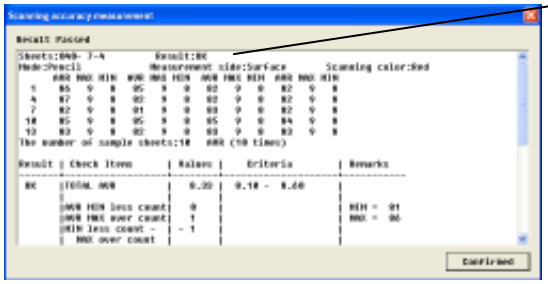




(2) Click the “Yes” button.



(3) Measurement will start.



(4) Confirm displayed results.

Display OK or NG

Results of the Automatic judgment is shown like the display at the left.

If results shows “NG”, clean the scanning Assy, paper feeding pate and resume scanning.
If it is not fixed, check the contents in the box below.
If anything wrong is found replace the device.

(5) Click the “Confirmed” button.

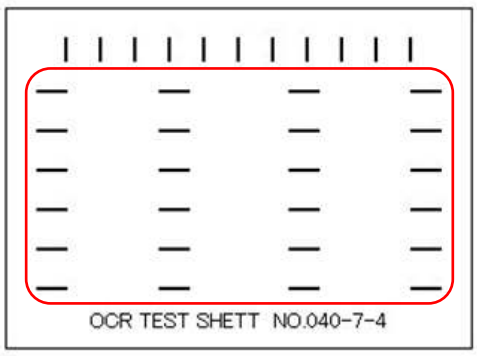
(6) As it returns to the dialog (1), change parameters and resume scanning.
Normally perform Pencil – Red – Surface (back)

(7) Click the “Finish” button to finish

< Judgment > Automatic judgment
The value of the “TOTAL AVR” should be in the criteria.
(The AVR value will be displayed in 10 time value as shown in the example.
(Example: 8.30→83)

In case of “NG”
Check if (1)-(4) are normal because the results varies depend on,
(1) Print quality, (2) Sheet contamination, (3) Accuracy of the block, (4) Accuracy of the skew, etc.
(Reading position of marks are shown in the Fig.3)
If nothing is wrong replace the device because it might be abnormal condition of device.

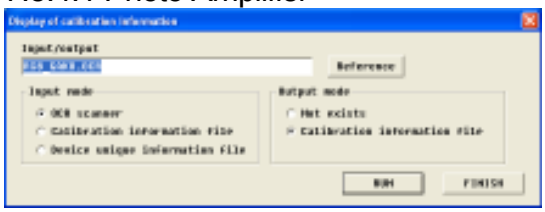
Fig.3 Position of recognition



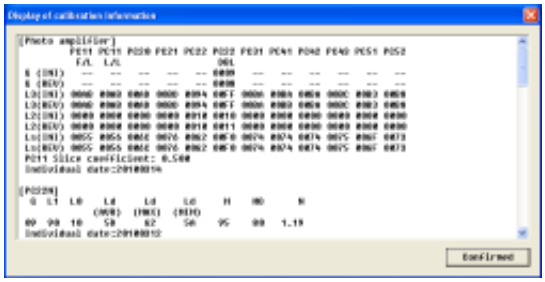
7.8.4 Display of calibration information

Display the results of measurement. (Device unique data)

7.8.4.1 Photo Amplifier



(1) Specify parameters and click the “RUN” button.
- Input/Output file name: RX8_GAKU.OCR
- Input mode : OCR Scanner
- Output mode : Not exists



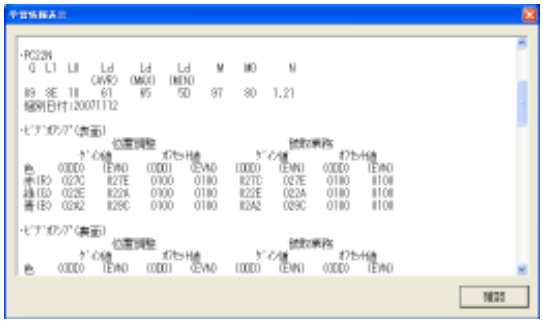
[Photo Amplifier]
Photo information to detect sheet.

NOTE: G (Gain), L2 (Dark Level), L3 (Blight Level), Ls (Slice Level)
Ls is the slice level for the judgment and determined with L2 and L3.

Check Item	Photo Number	Criteria	Note
L3 (Blight Level)	PC11,20,21,31,41,42,43,51,52	20 ~ F0	
	PC22	30 ~ FF	
	PC22(DBL)	30 ~ FF	
L2 (Dark Level)	PC11,20,21,31,41,42,43,51,52	00	
	PC22	01 ~ 30	
	PC22(DBL)	01 ~ 30	

If results are out of criteria, cleaning and/or replacement might be required.

7.8.4.2 PC22N



PC22:
Device unique factor for detection of dual feeding by light intensity.

NOTE: G (Gain), L1 (Blight Level), L0 (Blight Level), Ld (Level w/ paper), M (Measured transmissivity), MO (Reference transmissivity), N (Measurement results)

Check Item	Criteria
N(Results)	0.5 ~ 2.0 (Normal 1.0)

If results are out of criteria, cleaning and/or replacement of the PC22 might be required.

7.8.4.3 VIDEO Amplifier



[Video amplifier surface and back]
Display of video gain of the CCD sensor

NOTE:

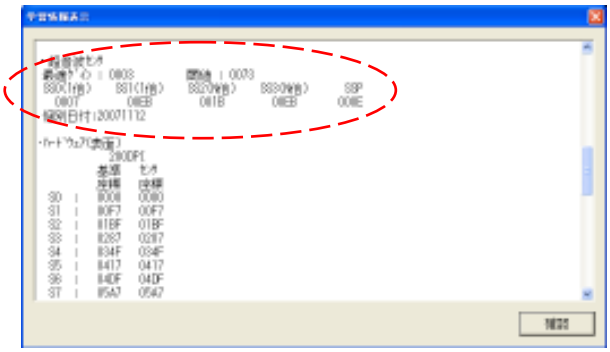
Gain (Video amplifier gain), ODD(odd numbers), EVN (even numbers)
Display the best gain value for scanning side and scanning color.

・The best gain value : 0000～03FF （Offset is fixed as 0100）

After cleaning or replace the lamp, if it is between 0300～03FF, the light intensity is too low so check below..

(1) If the filament of both sides of the lamp are lit?（no disconnection?）
(2) If the mirror and/or lens in the scanning part is not contaminated. If so, clean them.
(3) If there is any obstacle in the light path. If so remove it.

7.8.4.4 Ultra Sonic Sensor



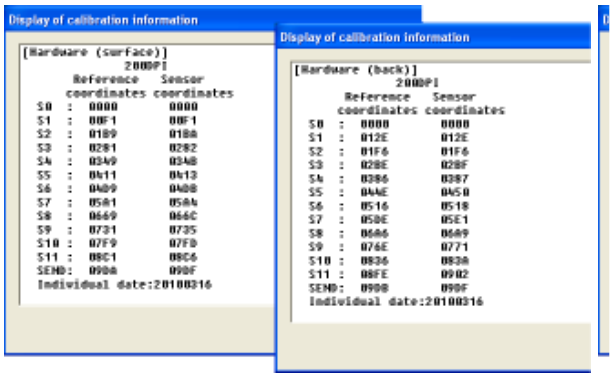
[Ultra sonic sensor]
Device unique data to detect multiple feeding by the Ultra sonic sensor

Level of the Ultra sonic sensor under various condition

Mark	Gain Value	Sensor Output	Sheet	Measured Data
SS0	0001（same）	No	No	Level w/o sensor output (off-set)
SS1	0001（same）	Yes	No	Sensor output
SS2	best gain with calibration	No	No	Off-set at the best gain
SS3	best gain with calibration	Yes	No	Sensor output at the best gain
SSP	best gain with calibration	Yes	Yes	Sensor output when the light is blocked with the test sheet (040-7-4: 72kg paper)【should be about 0060～00C0】

NOTE: To detect dual paper feed at the best gain, find out the gain value and threshold of the sensor.
Get the best gain with the 1st sheet so that the SSP will be (0060～00C0).（Gain 0001～0007）
Get the threshold value with after 2nd sheet so that detect the dual feed. (threshold value 004B～00F0）

7.8.4.5 Hardware



[Hardware surface and back]
Information for correction of distortion of the CCDSensor optical systems.

NOTE: Recognize 11 marks at the edge of sheets and display the reference value (reference coordinate) and the measurement (sensor coordinate)
At recognition of characters it will be used for correction of distortion.

If result is “NG” (failed),
(1) Judge from the measurement results.
When both side are measured at the same time, to confirm which side has the issue and check if the sheets are normal. Repeat scanning multiple times.
(2) Confirm the images.
Get images with the reading test of the maintenance menu or Video image display 2.
(3) Cleaning the optical systems
If image is abnormal at (2), clean the lower mirror, cover sheet, and the scanner assy.

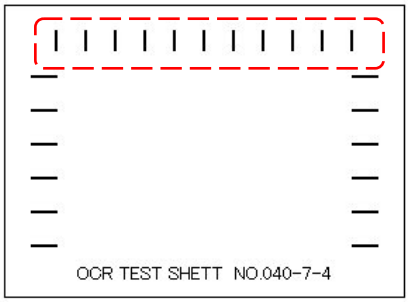
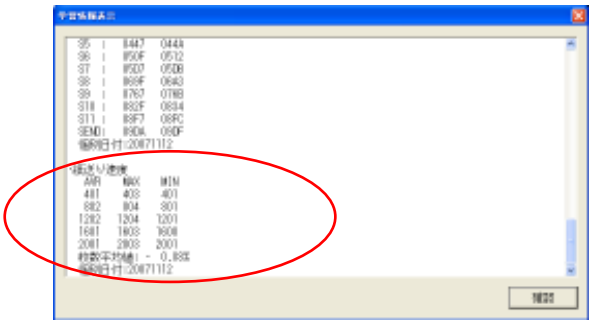


Fig. 4 Position of mark recognition

7.8.4.6 Paper feeding speed



[Feeding speed]
Speed correction range of the Paper feed motor
Correction range: ±1.0%

NOTE: Recognizing the 11 marks in the Fig.4 and calculate the speed difference between the reference value and measurement results and get the speed correction value.
Result +: Paper feeding speed is faster
Result -: Paper feeding speed is slower

If result is “NG” (failed),
(1) Clean the T1 roller. Check if there is any part where paper might be jammed in the paper feeding mechanism.
In case of (+): Paper feeding speed is faster. Roller maybe has become thicker because of contamination.
In case of (-): Paper feeding speed is slower, abnormal paper feeding, paper slip。
(2) Confirm the images.
Get images with the reading test of the maintenance menu or Video image display 2.
(3) Cleaning the optical systems
If image is abnormal at (2), clean the lower mirror, cover sheet, and the scanner assy.
(4) If (3) can not fix the problem, replace the scanner ASSY and the MAIN_P/K__ASSY.
Abnormalities of image are caused by contamination at the reading part and the scanner assy.

7.8.5 Information Display of Photo / Video / SW / Ultra Sonic Sensor

7.8.5.1 Status of Photo Level / Switch



(1) Specify parameters and click the “RUN” button.

・Photo gain：All gain（default）

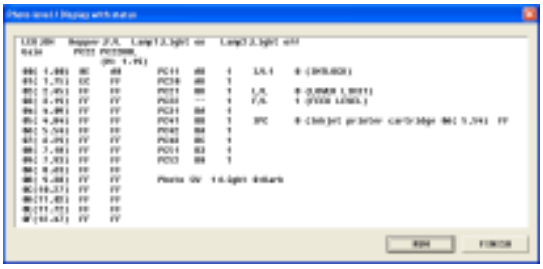
・Lamp mode1：Light on（default））

・Lamp mode2：Light off （default）

・LED：ON（default）

・Hopper position：F/L（default）

If necessary, change parameter and perform this.



(2) Level of each photos will be displayed every 2 second

To fix the screen, click the “Pause” button.

To finish display, click the “FINISH” button.

---

1. Photo level at gain 0 should satisfy the criteria.

Photo number	Criteria	Note
PC22	≥ 20	Exclude PC22DBL

- If it is out of criteria, take actions considering cable disconnection, part failure, contamination, optical axis shift.
- Minimum level is at the gain 00 and it becomes larger in accordance with the gain and maximum is “FF”.
- If level is not displayed and level will not be changed even lit by flashlight, light receiving section has issue. If level varies, light emitting section has problem.

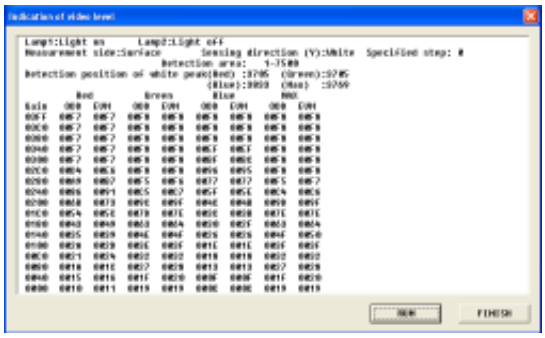
2. Judgment of the photos and switches

Switch name	Switch operation	
I/L (Inter Lock)	Check by closing/opening the front part of the device.	Close: ”0”
L/L (Lower Level)	Elevator operation / Detect by specifying UP (L/L).	L/L=”1”
F/L (Feed Level)	Elevator operation / Detect by specifying UP (F/L). Or lift the Pickunit by hands.	F/L=”1”
IPC	NONE	
Sensor PC11、PC20、PC21、PC22、PC31、PC41、PC42、PC43、PC51、PC52	Confirm condition by blocking light with paper or finger.	Normal condition Blight: ”1” Dark: ”0”

7.8.5.2 VIDEO Level

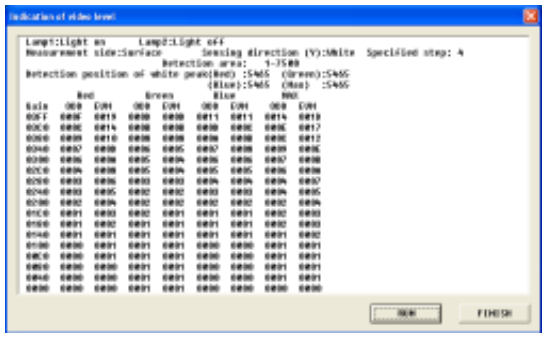


(1)Specify parameters and click the “RUN” button.
・Video gain：All gain（default）
・Lamp mode1：Light on（default）
・Lamp mode2：Light off（default）
・Skeet face for measurement：Surface（default）
・Sensing direction(Y)：White（default）
・Specified step：0（default）
・Detection area 1 ~ 7500（default）
If necessary, change parameter and perform this.



(2)Level of video will be displayed every a few second
To fix the screen, click the “Pause” button.
To finish display, click the “FINISH” button.

Sample1
Specified step: 0 / Sensing direction(Y): White



Sample2
Specified step: 4 / Sensing direction(Y): White

NOTE:
・Values of the ODD、EVN are approximation at each gain.
・at the Video gain “All gain”, the level will not change or if variation is large check the lamp condition.
・If specified step is “0”, displayed level maybe about “0020”.（No output because it locates at the reading position mirror）
・In case of the specified step 4, white with Y position, displayed level maybe as shown above “03FF～0000” and is getting reducing.（The gain is large at 03FF and display large value.）
・As a cause of problem, consider failure of the lower mirror (surface), the cover sheet (surface9, the lower mirror (back), the cover glass (back), CPS615 P/K, the scanner ASSY, MAIN_P/K_ASSY.
As the position of white peak detection is reference, value out of specifications may be displayed.

7.8.5.3 Ultra sonic sensor level

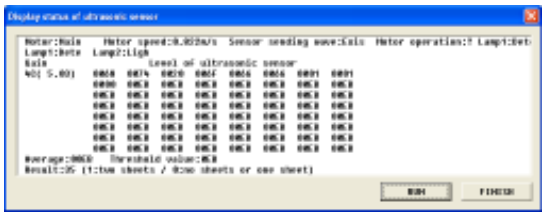


（1） Confirm the best gain of the Ultra sonic sensor.
Refer to “7.8.4.4 Ultra Sonic Sensor”

(2) “Level of ultrasonic sensor” in the “Information display of Photo / Video level / SW/ Supersonic sensor” dialog, specify parameters and click the “RUN” button.

- Gain of ultrasonic sensor: xx（Specify the gain confirmed at (1)）
- Motor: Main(default)
- Motor speed: 0.822 m/s(default)
- Sensor sending wave: Exists (default)
- Motor operation: Detected（default）
- Lamp mode 1: Light on (default)
- Lamp mode 2: Light off

If necessary, change parameter and perform this.



(3)Level of ultrasonic sensor will be displayed every a few second

To fix the screen, click the “Pause” button.

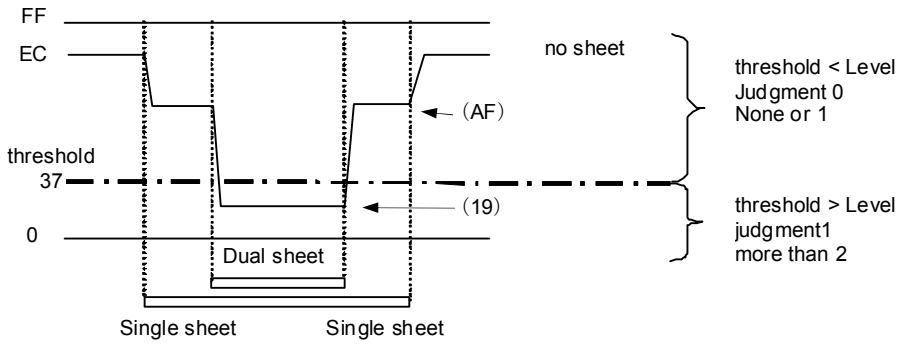
The “Pause” button will be changed to the “FINISH” button. To finish display, click the “FINISH” button.

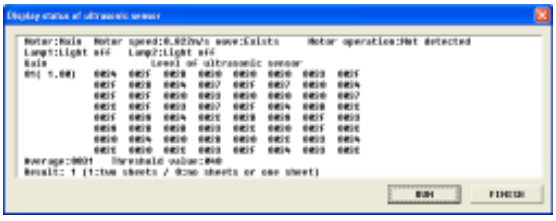
NOTE: The ultra sonic sensor detects dual paper feed by checking its level reduced by air layer between papers.

The level of the ultra sonic sensor is mostly constant.

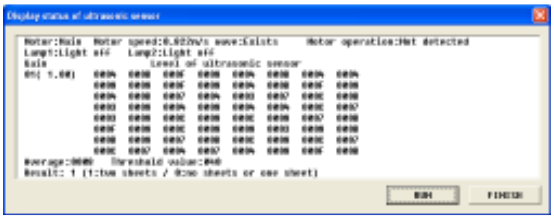
Check if it works correctly by changing the number of sheets on the feeding mechanism

The figure below shows an example of level change during paper feeding.





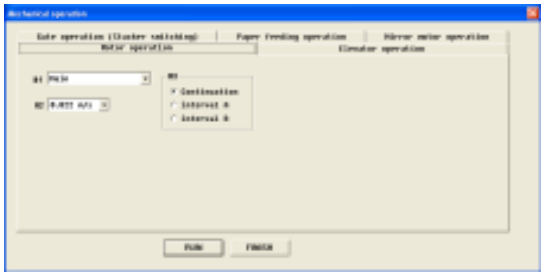
Value for more than one



Value for more than two

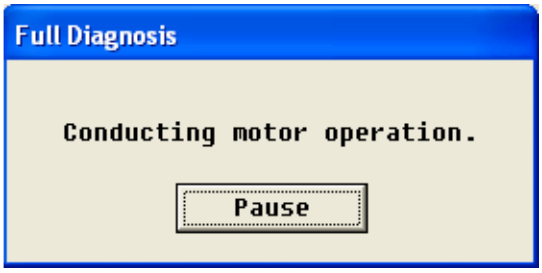
7.8.6 Mechanical operation

7.8.6.1 Motor operation



(1)Specify parameters and click the “RUN” button.
The specified motor starts rotating with specified mode.
To finish the mechanical operation, click the “FINISH” button.

#1 Category: Main*/T1/Eject/Pick/
Main+T1+Eject/All
#2 Motor Speed: 0.822*/0.547/0.411/0.273 m/s
#3 Operation Mode: Continuation*/
interval A/interval B



(2)If you want to stop operation, click the “Pause” button.

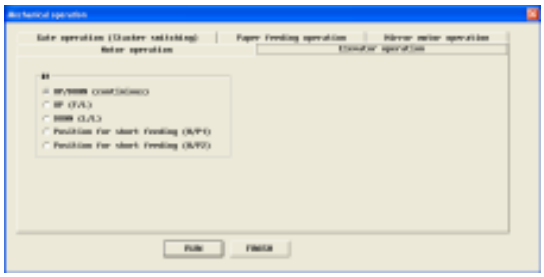


(3)Click the “OK” button.

NOTE* Confirm the specified motor is working without any abnormal noise.

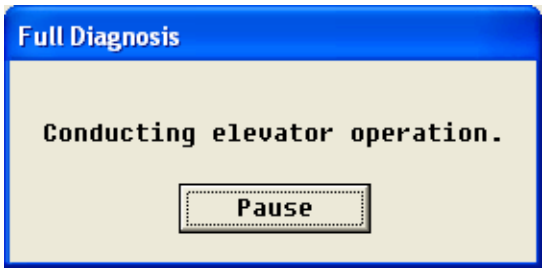
Parameter	Operation	Stop condition
Continuous	Continuous rotation mode	10 minutes
interval A	Repeat 1 second rotation and 0.004 second stop	500 rotations
interval B	Repeat 1 second rotation and 1 second stop	500 rotations

7.8.6.2 Elevator operation



(1)Specify parameters and click the “RUN” button. To finish the elevator operation, click the “FINISH” button.

#1Operation Mode:
UP/DOWN (Continuation mode)* /UP(F/L）
/Position for short feeding(H/P1）
/Position for short feeding(H/P2）



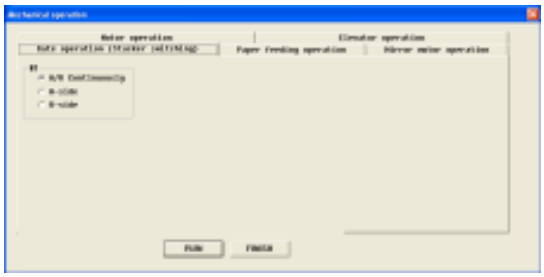
(2)If you want to stop operation, click the “Pause” button.



(3)Click the “OK” button.

NOTE: Check the elevator operation.

7.8.6.3 Gate operation



(1)Specify parameters and click the “RUN” button. To finish the elevator operation, click the “FINISH” button.

#1 Operation Mode:
A/R Continuation*/A-Side/R-Side



(2)If you want to stop operation, click the “Pause” button.



(3)Click the “OK” button.

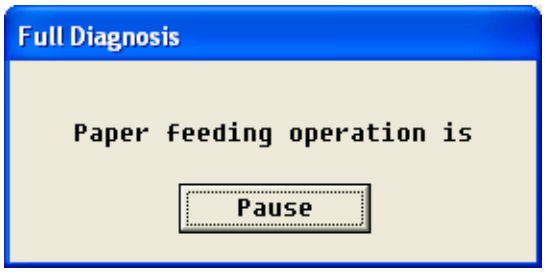
NOTE: Confirm the gate operation

7.8.6.4 Paper feeding operation



(1)Specify parameters and click the “RUN” button. To finish the elevator operation, click the “FINISH” button.

sheets width:2970*、Length:2100* (unit0.1mm)
#1 speed: 0.822*/0.547/0.411/0.273 m/s
#2 Pause: Accept stacker*/Reject/A･R Alternately
#3 Continuous feeding: Not exists*/Exists
#4 Pause: Not exists*/Exists
#5 Lamp mode1: Light on*/Light off
#6 Lamp mode2: Light on/Light off*
*:default



(2)If you want to stop operation, click the “Pause” button.



(3)Click the “OK” button.

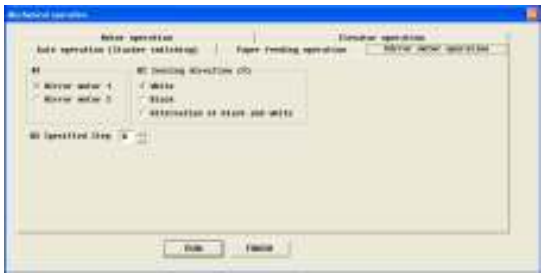
NOTE: This operation for the overall evaluation of sheet feeding mechanism.

Sheet size Default: A4 (Landscape) 2970×2100 (unit0.1mm)
(The same size as the test sheet)

Size range that can be specified: 740 to 3050 × 740 to 4200 (unit0.1mm)

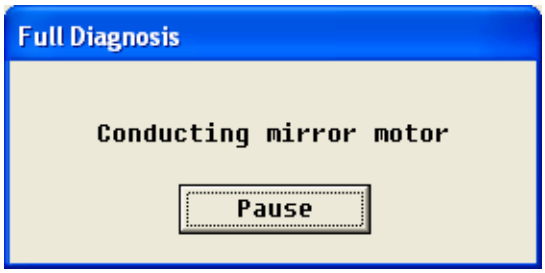
Paper feeding should be done normally as specified.

7.8.6.5 Mirror Motor operation



(1)Specify parameters and click the “RUN” button.
To finish the elevator operation, click the “FINISH” button.

#1: Operation Mode
Mirror motor1(surface) / Mirror motor2(back)
#2: Sensing direction(Y)
White/ Black/ Alternation of black and white
#3: Specified step
0 to 99 Normal operation has 4 steps.

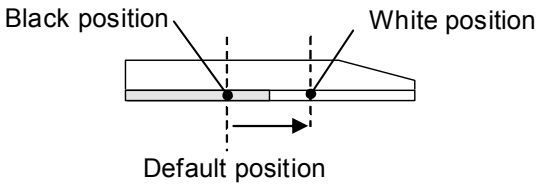


(2)If you want to stop operation, click the “Pause” button.



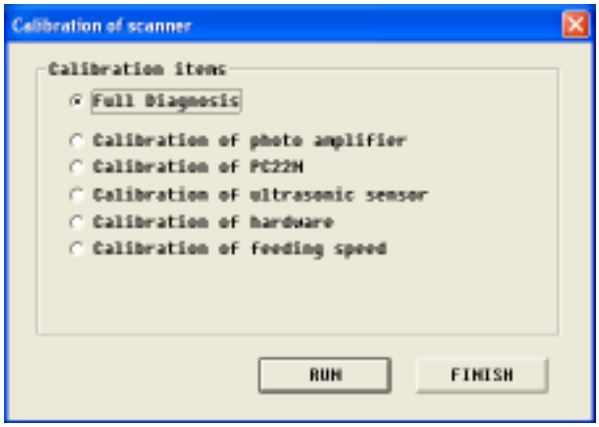
(3)Click the “OK” button.

NOTE: Confirm the mirror motor operation
The mirror position is automatically positioned when the power on and located at normal reading position (black position)
Specifying #1: Mirror motor1(surface) or Mirror motor2(back),#2:White,#3:4Step the mirror position at the white position (gain measurement of Video amplifier, initial measurement position of white level)
Mirror position at error is not fixed.



7.8.7 Calibration of Scanner

This is the same as “OCR Scanner Auto calibration” in the chapter 6.



8 Replacing Parts

CAUTION **When Replacing the parts, please wear a wrist band as a counter measure against static electricity**

(Please follow the instructions outlined in Section 4.2)

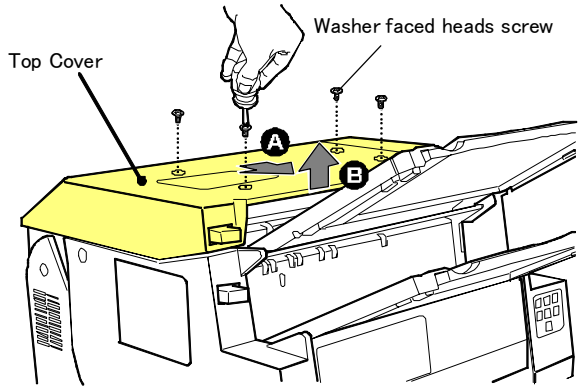
Please follow the municipal by-laws, or regulations when disposing parts

8.1 Preparation

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

Removing and attaching the cover during maintenance.

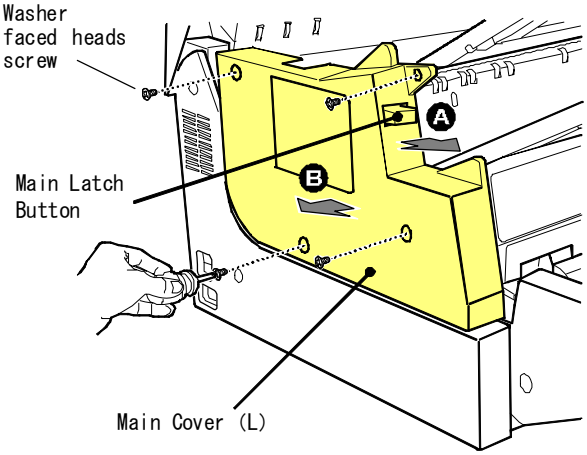
■Top Cover



①Unscrew 4 washer faced heads screw as shown in the left picture

② Slide the Top Cover in direction A. Then remove the Top Cover by pulling it in direction B.

■Main Cover (L)

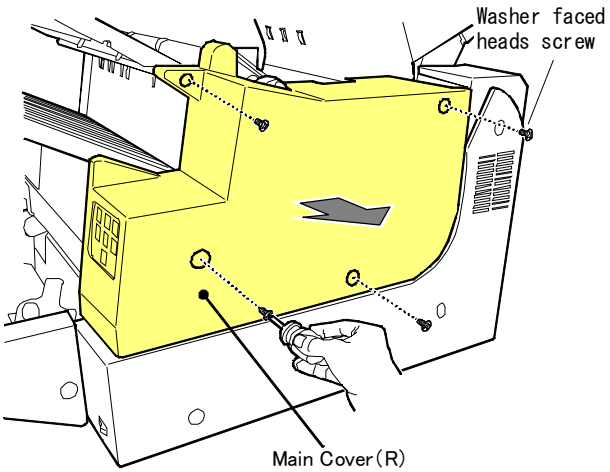


①Push the Main Latch Button to open the Top Cover.

②Unscrew 4 washer faced heads screw as shown in the left picture

③Pull the Main Cover (L) in direction A. Then remove the Main Cover by pulling it in direction B

■Main Cover (R)

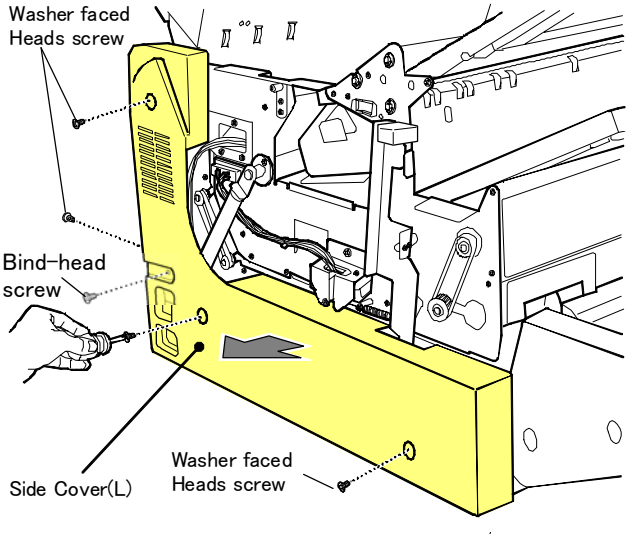


① Push the Main Latch Button to open the Top Cover.

② Unscrew 4 washer faced heads as shown in the left picture

③ Remove the Main Cover (R) by pulling in the direction of the arrow

■Side Cover (L) (R)

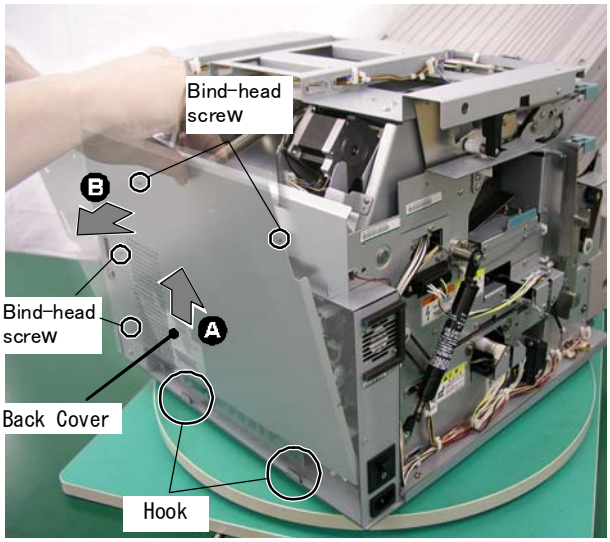


① Unscrew 1 bind-head screw and 4 washer faced heads screw on the Slide Cover

② To remove the Side Cover (L) pull it in the direction of arrow

③ Take the same step as ② to remove the Side Cover (R)

■Back Cover



① Remove the Top Cover

② Unscrew 3 bind-head screws on the Back Cover

③ Slide the Back Cover in direction A, then pull it in direction B

8.2 Replacing Parts

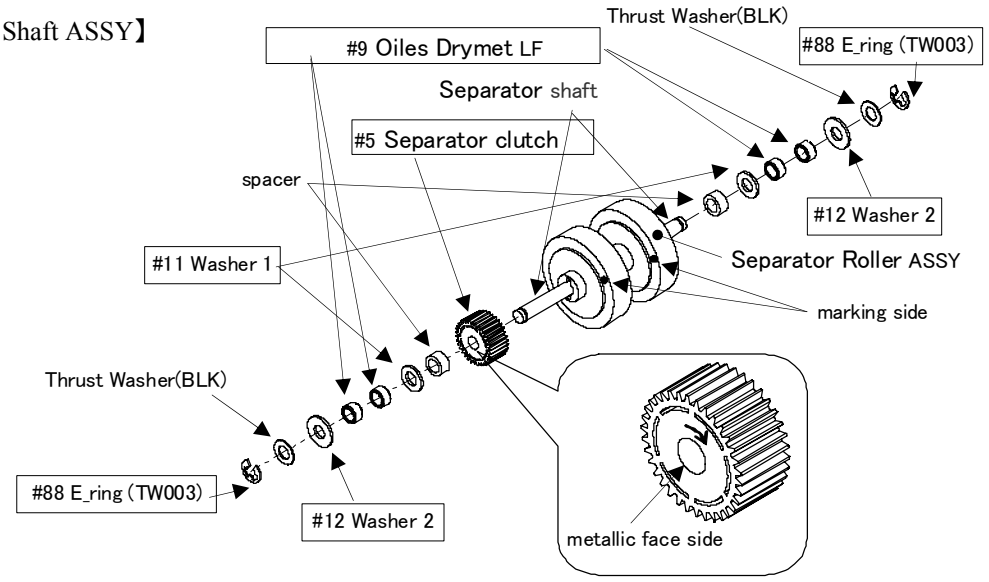
8.2.1 Raplacing the Pick Unit, the Separator Roller, the Pick Roller, the Separator Clutch, the Oiles Drymet LF, the Oiles Bush, the Washer 1, the Washer 2, the Gear (S-P), and the Pick Gear

For instructions, please refer to “Chapter 2.7 Replacing the Roller” of the instruction manual to learn how to replace the Roller.

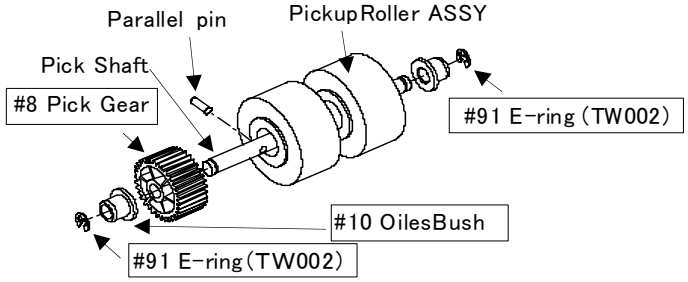
■ Replacing the Separator Clutch, the Oiles Drymet LF, the Oiles Bush, the Washer 1, the Washer 2, and the Pick Gear

① Remove the Pick Unit, Separator Shaft ASSY, and the Pick Shaft ASSY.
Read “Chapter 2.7 Replacing the Roller” of the instruction manual
② Replace the Separator Clutch, the Oiles Drymet, the Oiles Bush, the Washer 1, the Washer 2, and the Pick Gear
③ Make sure the marking on the Separator Roller ASSY and the metallic part of the gear face the direction as shown below.

【Separator Shaft ASSY】



【Pick Shaft ASSY】



■Replacing the Gear (S-P)

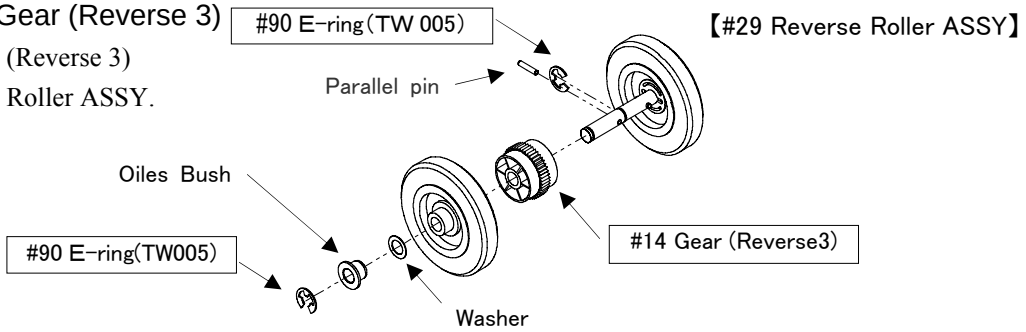
For instructions, please refer to “Chapter 8.3.39 Replacing the Gear (S-P) ”

8.2.2 Replacing the Reverse Roller, the Gear (Reverse 3), and the Pick Drive Gear 2

For instructions, please refer to “Chapter 2.7 Replacing the Roller” in the instruction manual

■ Replacing Gear (Reverse 3)

Replace Gear (Reverse 3)
from Reverse Roller ASSY.



■Replacing the Pick Driver Gear 2

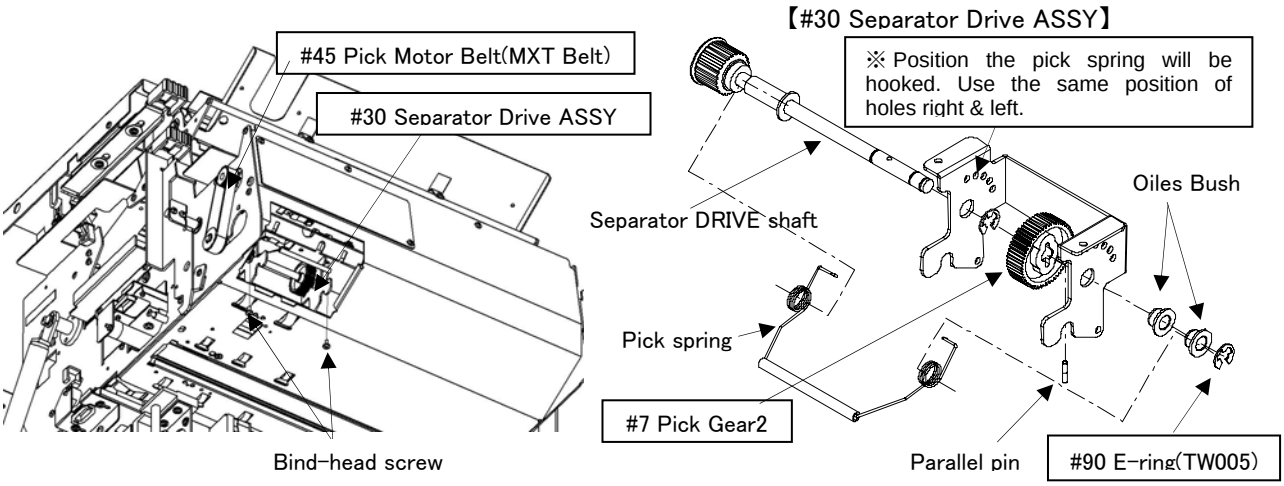
① Remove the Main Cover (L). For instructions, please refer to “8.1 Preparation”

② For instructions, please refer to “8.3.7 Replacing the Hopper ASSY” and remove the Hopper Cover ASSY and the Hopper

③ Remove the Pick Motor Belt.

④ For instructions, please refer to “8.3.40 Replacing the F/L sensor”. Unscrew 2 bind-head screws and Remove the F/L Bracket Assembly, and unplug F/L Separator Cable connector.

⑤ Unscrew 2 bind-head screws on the Separator Drive ASSY and remove the Separator Drive ASSY



⑥ Remove 2 E-rings (TW005) and unplug the Separator Drive ASSY from the Separator Drive Shaft and replace Top Gear 2.

⑦ To attach the Pick Motor Belt, the F/L Sensor Cable Connector and the Pick Spring, For instructions, please refer to “9.6 Checking the pressure of the Pick Roller”

8.2.3 Replacing the Fluorescent Lamp (Front Side)

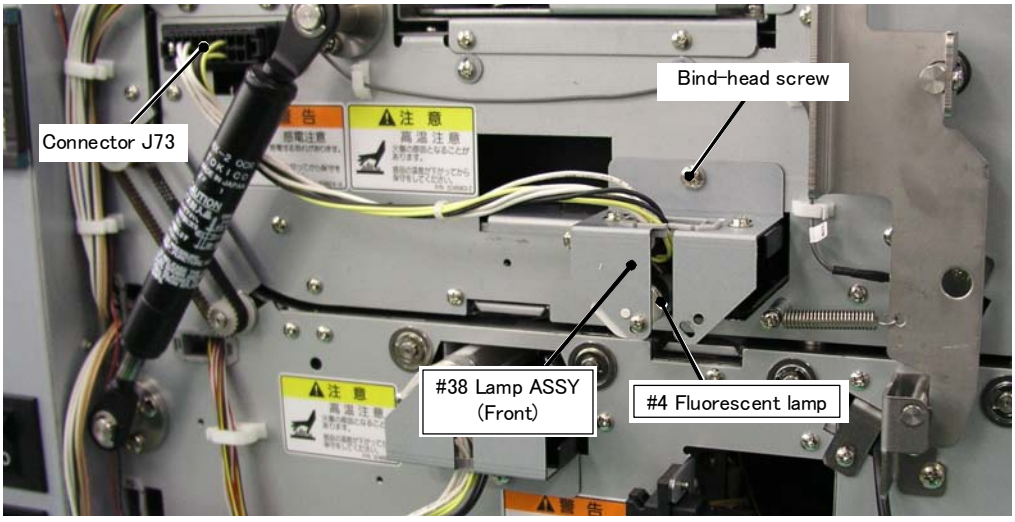
Caution：Wear gloves during this procedure

- To prevent injury from broken Fluorescent Lamp
- To prevent the Fluorescent Lamp from being dirty

① Remove the Main Cover (L). For instructions, please refer to “8.1 Preparation”

② Unscrew 1 bind-head screw on the Lamp ASSY in place.

③ Disconnect connector J73, and remove the Lamp ASSY by pulling it forward.

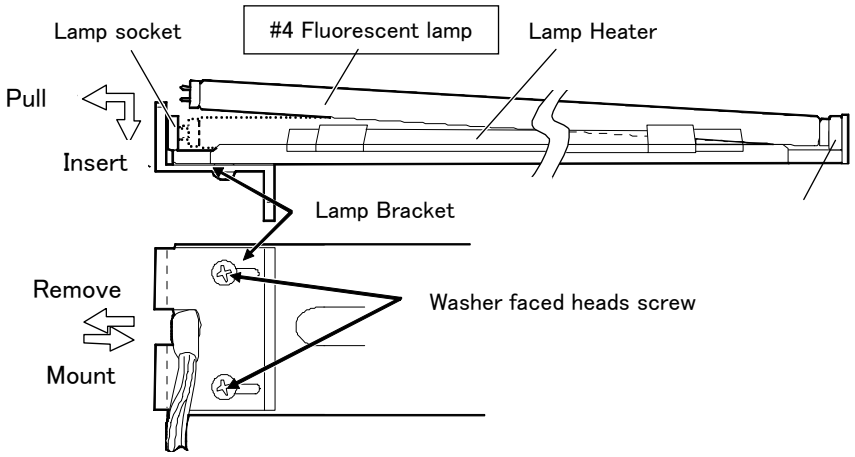


④ Loosen 2 washer faced heads screw and pull the Lamp Bracket in the direction shown below. Remove Fluorescent Lamp from the lamp socket.

⑤ Replace the Fluorescent Lamp

Caution: Do not use force to lift the Fluorescent Lamp.

To attach the Fluorescent Lamp, push in the Fluorescent Lamp and place the Lamp Heater over it. If you apply pressure on the tip of the lamp, the lamp may get damaged.



⑥ Take the reverse steps to attach the Fluorescent Lamp to the device.

⑦ After attaching the Fluorescent Lamp, run the Auto Calibration Test (refer to Chapter 6)

Caution：**when replacing the Fluorescent Lamp**

If you do not attach the lamp heater properly, the device may get damages and cause errors.

Read the below warning when going through the procedures

If there is an error in the light density, check if all procedures were performed correctly.

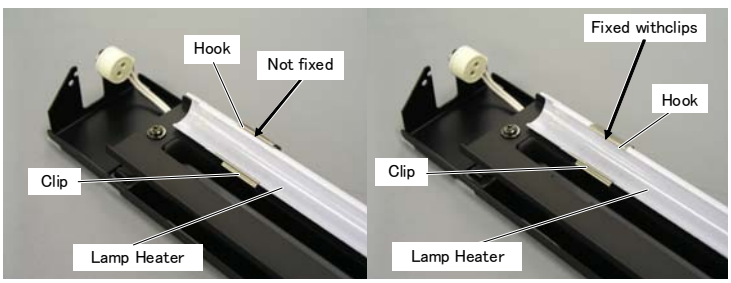
Caution:

Make sure the Fluorescent Lamp and the Lamp Heater are positioned closely

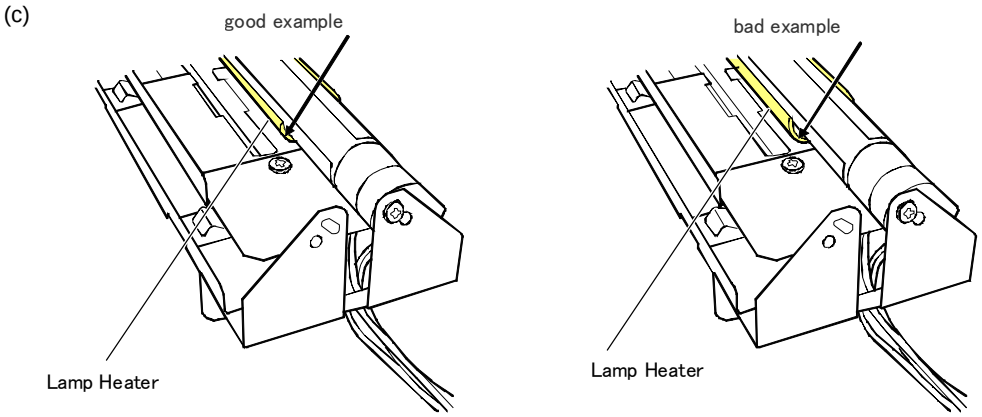
The Lamp Heater heats up the Fluorescent Lamp and balances the light density. If the 2 are not positioned closely, the Fluorescent Lamp will not heat up properly and may cause errors. Also, attached onto the Lamp Heater is a Temperature Fuse. If the Temperature Fuse is disconnected, it may cause an error in the light density. For instructions, please refer to procedure ④to check if the Temperature Fuse is attached properly.

① Check if the Lamp Heater is attached with 4 metallic clips. If it is not attached (As shown in exhibit A), make sure to attach it to the clips (the Fluorescent Lamp may not attach to the Lamp Heater, if the Lamp Heater is not attached to the clips).

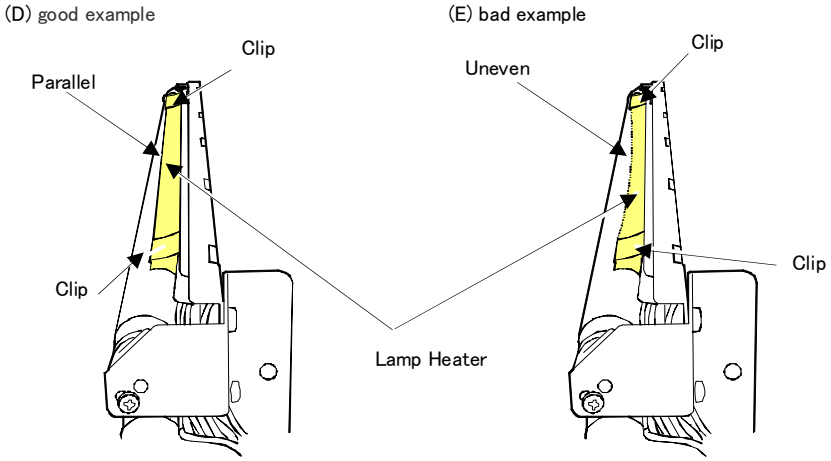
(A) (B)



② Check if there is no space between the Fluorescent Lamp and the Lamp Heater (For instructions, please refer to exhibit C)

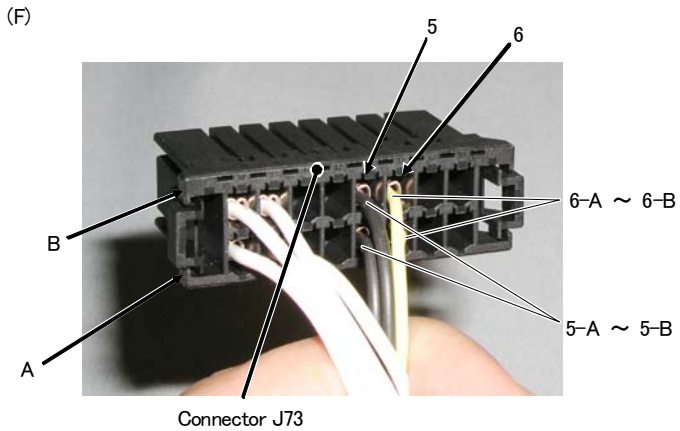


③ Check if the Fluorescent Lamp and the Lamp Heater is parallel.



④ Checking the Temperature Fuse

Check if the pins (5-A~5-B and 6-A~6-B) on connector J73 are maintaining the normal level. If the connector is disconnected, make sure to replace Lamp ASSY



Specifications

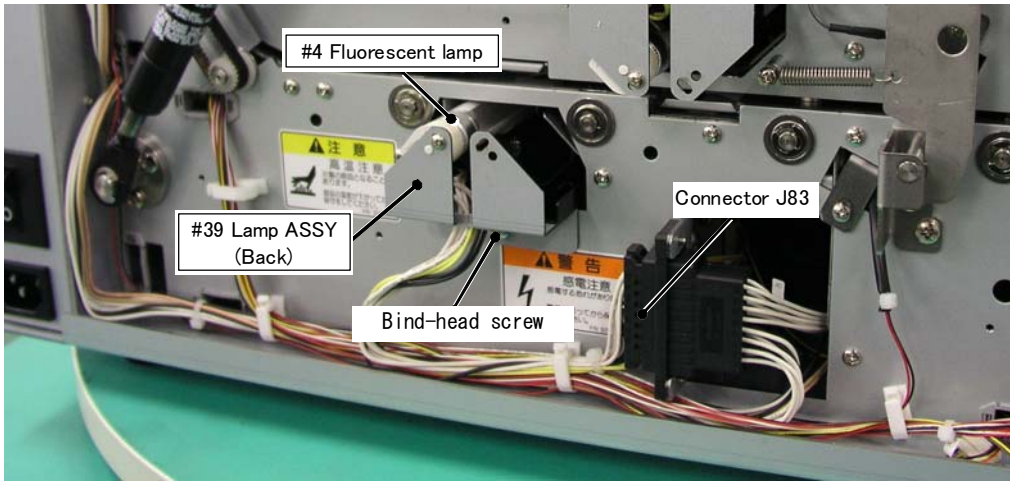
#	Pin	Normal Level
1	5-A ~ 5-B (Heater)	Below 100Ω (40Ω/50℃)
2	6-A ~ 6-B (Thermostat)	Below 50KΩ (20KΩ/25℃)

8.2.4 Replacing the Fluorescent Lamp (Back Side)

CAUTION：Wear gloves during this procedure;

- To prevent injury from broken Fluorescent Lamp
- To prevent the Fluorescent Lamp from being dirty

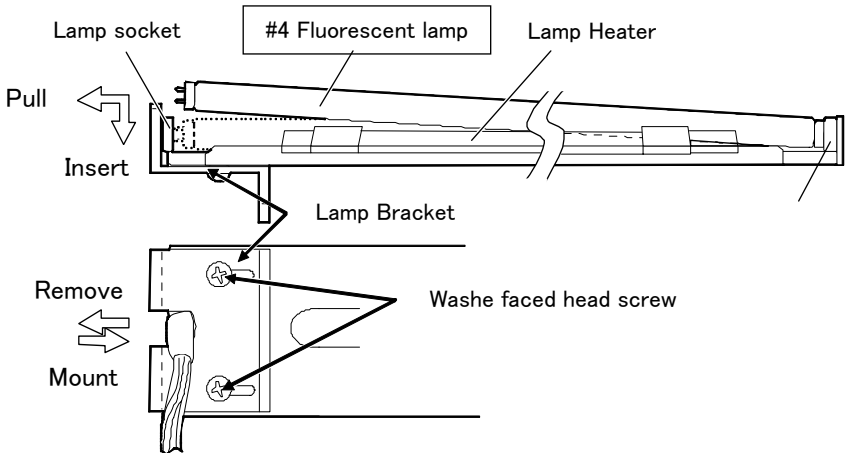
① Remove the Main Cover (L). For instructions, please refer to “8.1 Preparation”
② Unscrew 1 bind-head screw on the Lamp ASSY.
③ Disconnect the connector J73 and remove the Lamp ASSY by pulling it forward.



④ Loosen 2 washer faced heads screw and pull the Lamp Bracket in the direction shown below. Remove the Fluorescent Lamp from the lamp socket.
⑤ Replace the Fluorescent Lamp

Caution: Do not use force to lift the Fluorescent Lamp.

To attach the Fluorescent Lamp, push in the Fluorescent Lamp and place the Lamp Heater over it. If you apply pressure on the tip of the lamp, the lamp may get damaged.



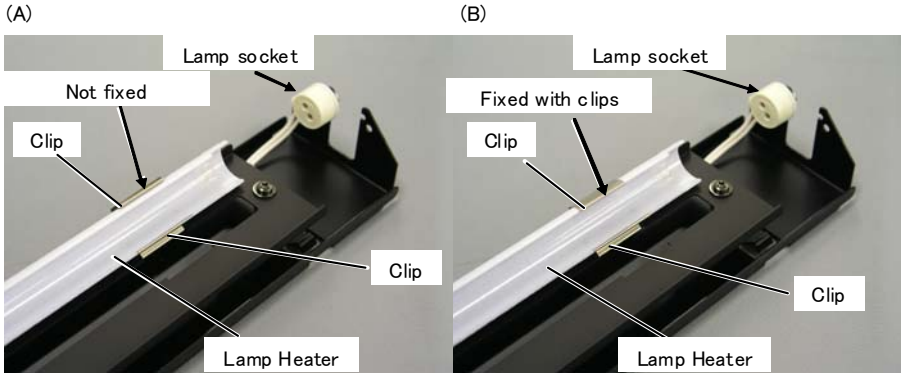
⑥ Take the reverse step to attach the Fluorescent Lamp to the device.
⑦ After attaching the Fluorescent Lamp, run the Auto Calibration Test (refer to Chapter 6)

∗ Caution when replacing the Fluorescent Lamp

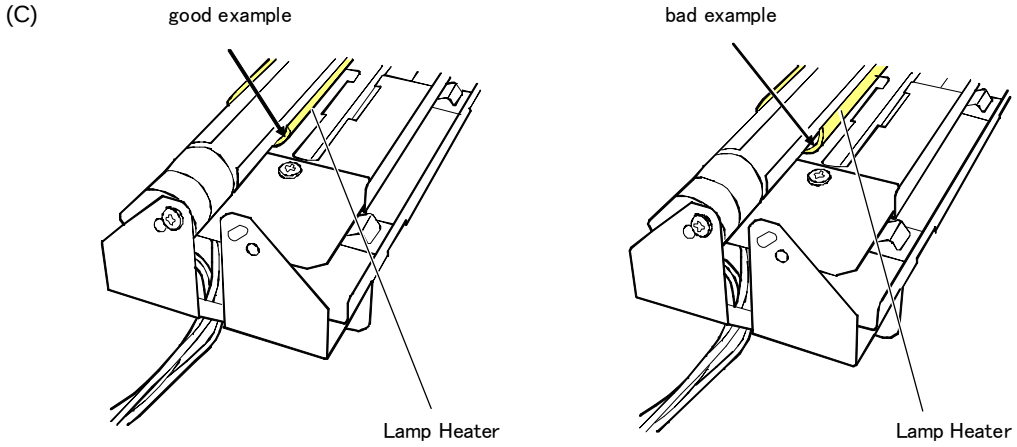
If you do not attach the lamp heater properly, the device may get damages and cause errors.
Read the below warning when going through the procedures
If there is an error in the light density, check if all procedures were performed correctly

Caution:
Make sure the Fluorescent Lamp and the Lamp Heater are positioned closely
The Lamp Heater heats up the Fluorescent Lamp and balances the light density. If the 2 are not positioned closely, the Fluorescent Lamp will not heat up properly and may cause errors. Also, attached onto the Lamp Heater is a Temperature Fuse. If the Temperature Fuse is disconnected, it may cause an error in the light density. For instructions, please refer to procedure ④to check if the Temperature Fuse is attached properly.

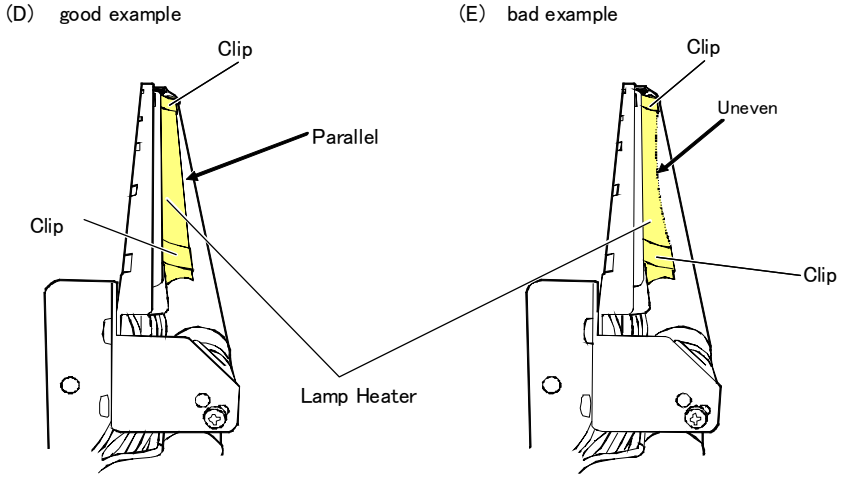
① Check if the Lamp Heater is attached to 4 metallic clips. If it is not attached (As shown in exhibit A), make sure to attach it to the clips (the Fluorescent Lamp may not attach to the Lamp Heater, if the Lamp Heater is not attached to the clips).



② Check if there is no space between the Fluorescent Lamp and the Lamp Heater (For instructions, please refer to Exhibit C)



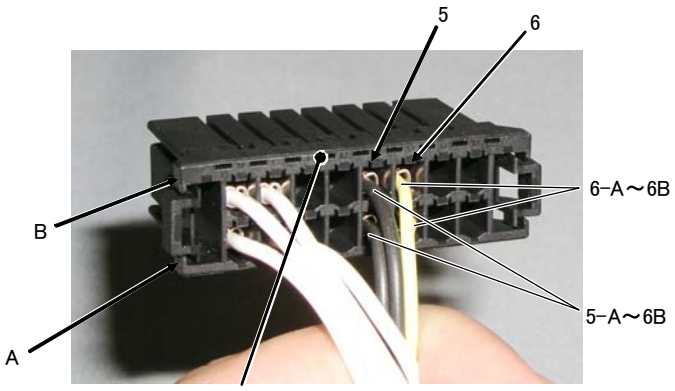
③ Check if the Fluorescent Lamp and the Lamp Heater is parallel.



④ Checking the Temperature Fuse

Check if the pins (5-A~5-B and 6-A~6-B) on connector J83 are maintaining the normal level. If the connector is disconnected, make sure to replace Lamp ASSY

(F)



Connector J83

Specifications

#	Pin	Normal Level
1	5-A ~ 5-B (Heater)	Below 100Ω (40Ω/50℃)
2	6-A ~ 6-B (Thermostat)	Below 50KΩ (20KΩ/25℃)

8.3 Replacing Maintenance Parts

After procedure, make sure to follow the steps in 4.2

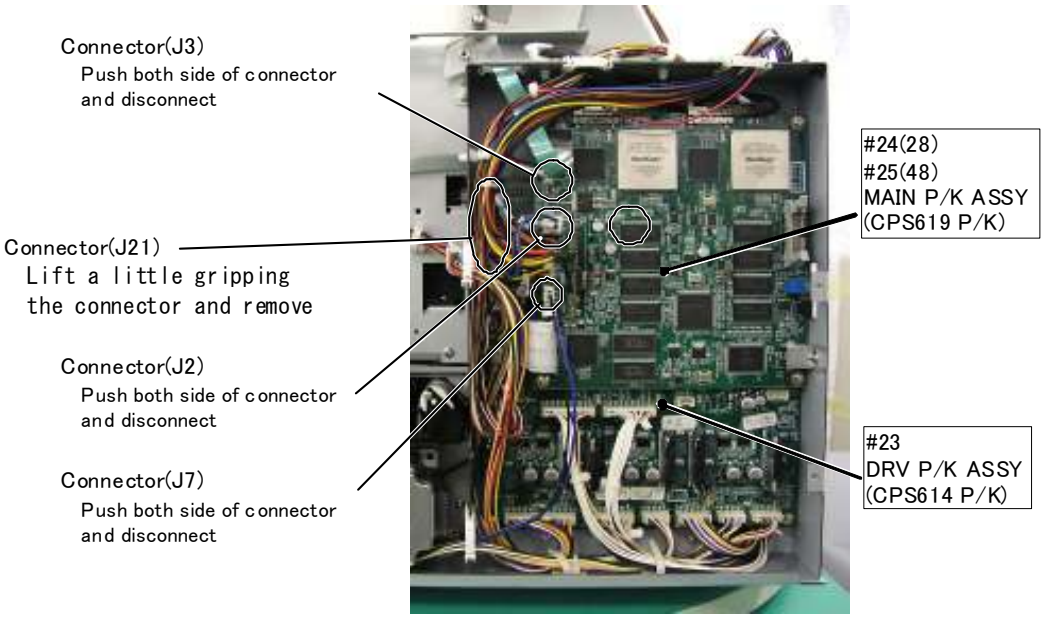
8.3.1 Replacing the PS ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2), Long-nose Pliers

① Remove, the Top Cover, the Main Cover (L) (R), the Side Cover (L) (R), and the Back Cover
For instructions, please refer to “8.1 Preparation”

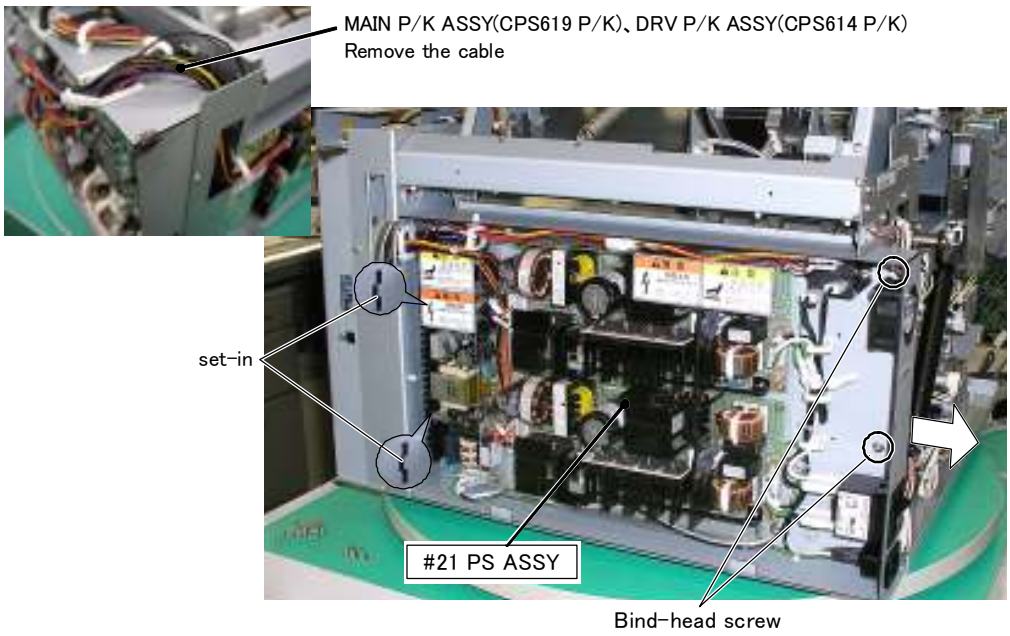
② Unscrew 5 bind-head screw (loosen 3, unscrew 2) from the Package Cover. Remove the Fan Connector (J7). For instructions, please refer to “8.3.2 Replacing Main P/K ASSY (CPS619 P/K)”

③Disconnect connector J2, connector J21, connecter J3 connected to the Main P/K ASSY (CP619 P/K).



④ Unscrew 2 bind-head screws on the PS ASSY (electric power unit)

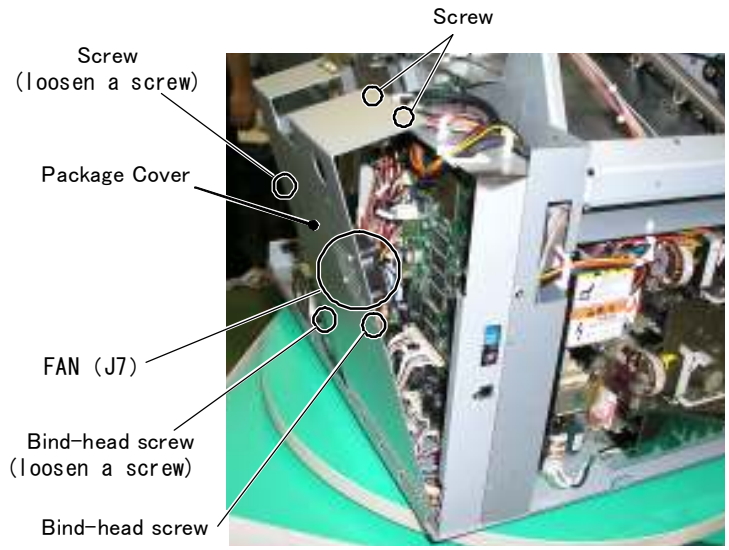
⑤ Pull the PS ASSY (electric power unit) out by sliding it in the direction of the arrow



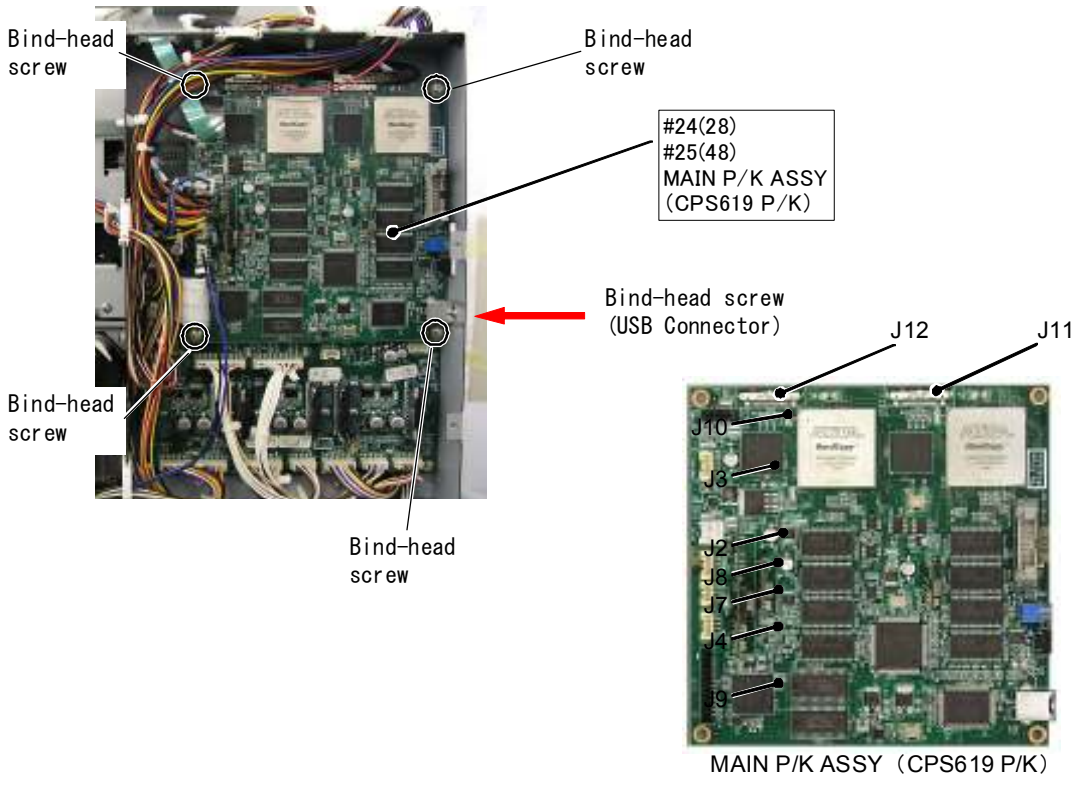
8.3.2 Replacing the MAIN P/K ASSY (CPS619 P/K

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Top Cover, the Main Cover, (L) (R), the Side Cover (L) (R), and the Back Cover.
For instructions, please refer to "8.1 Preparation"
② Loosen 2 bind-head screws on the Package Cover
③ Unscrew 3 bind-head screws on the Package Cover
④ Disconnect the Fan Connecter (J7) before removing the Package Cover.



⑤ Disconnect all 8 connectors attached to MAIN P/K ASSY (J9, J4, J8, J2, J3, J10, J12, J11)
⑥ Unscrew 5 bind-head screws on the MAIN P/K ASSY and remove the MAIN P/K ASSY. (When removing or attaching the MAIN P/K ASSY be careful not to damage the parts)



8.3.3 Replacing the DRV P/K (CPS614 P/K)

Tools Needed: Magnetic Philips Screwdriver (No.2), Box-wrench（5.5mm）

① Remove the Top Cover, the Main Cover (L) (R), the Side Cover (L) (R), and the Back Cover
For instructions, please refer to “8.1 Preparation”

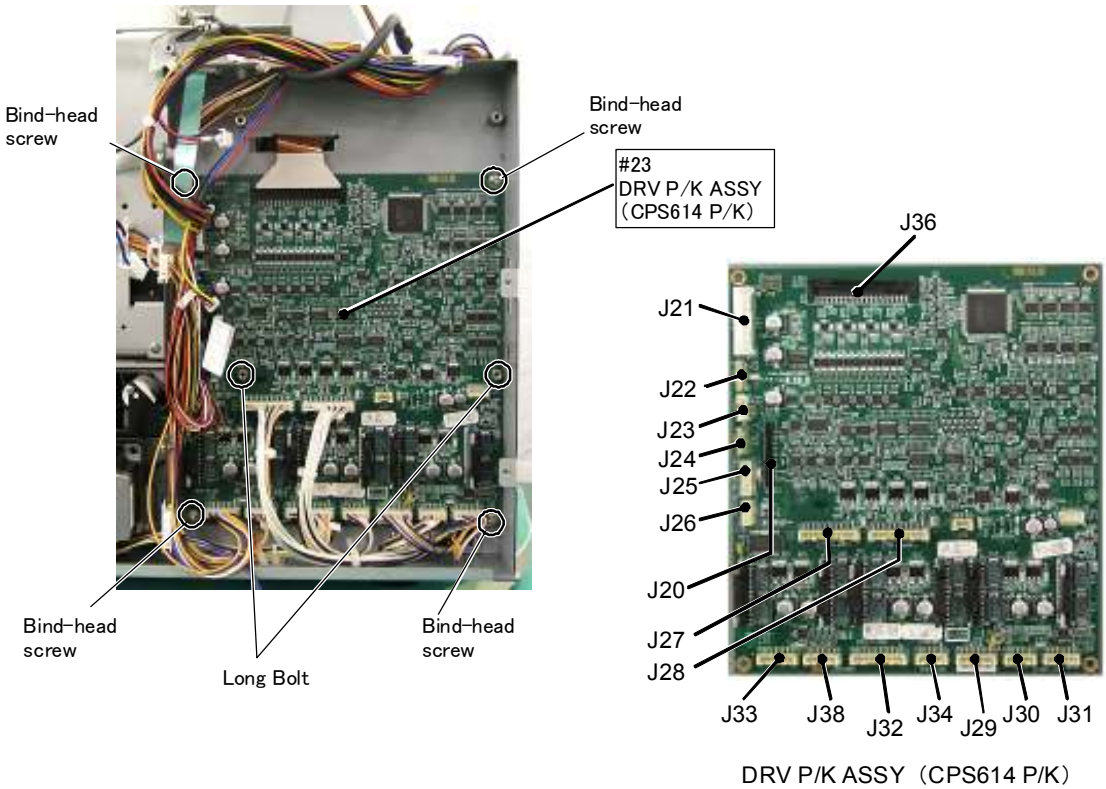
② Unscrew 5 bind-head screws (loosen 3, unscrew 2) from the Package Cover. Remove the Fan Connector (J7). For instructions, please refer to “8.3.2 Replacing the Main P/K ASSY (CPS619 P/K)”

③ Disconnect all 17 connectors attached to MAIN P/K ASSY (CPS619 P/K) (J31, J30, J29, J34, J32, J38, J33, J26, J25, J24, J23, J22, J36, J20, J27, J28)

④ Unscrew 4 bind-head screws and 2 long-head screws on the from the DRV P/K ASSY (CPS614 P/K)

⑤ Take the reverse steps to attach DRV P/K ASSY (CPS614 P/K)
Make sure the FPC cable is attached to the print side of cable facing out and the blue strip end plugs into J20 on DRV-P/K ASSY (CPS614 P/K)

CAUTION
White side up.

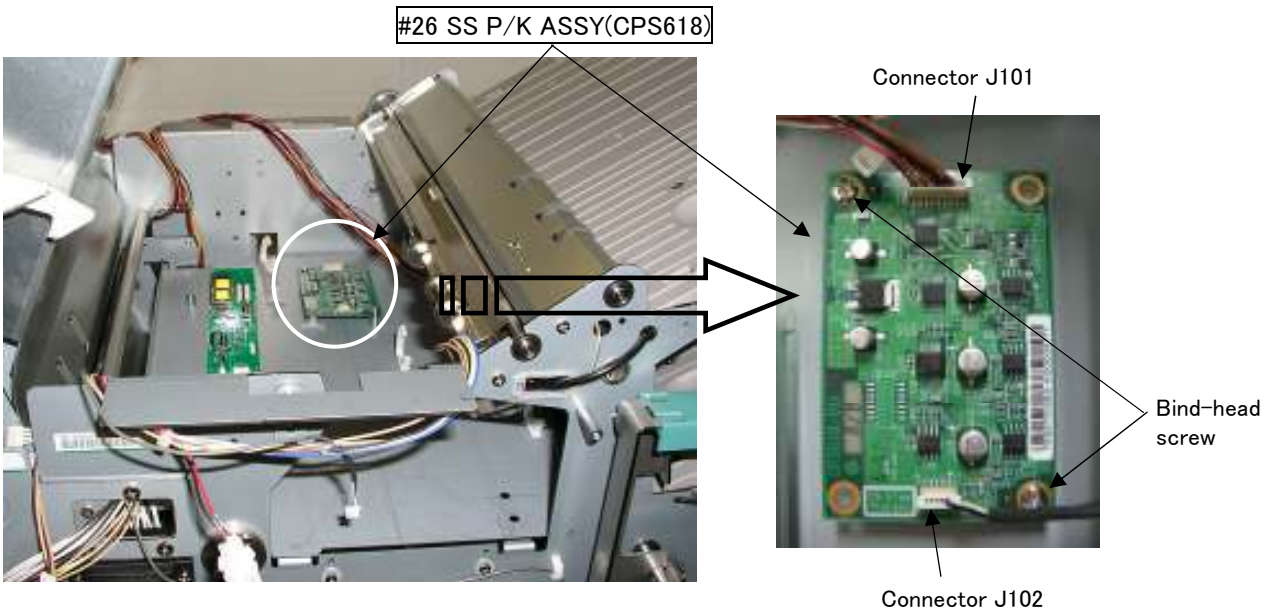


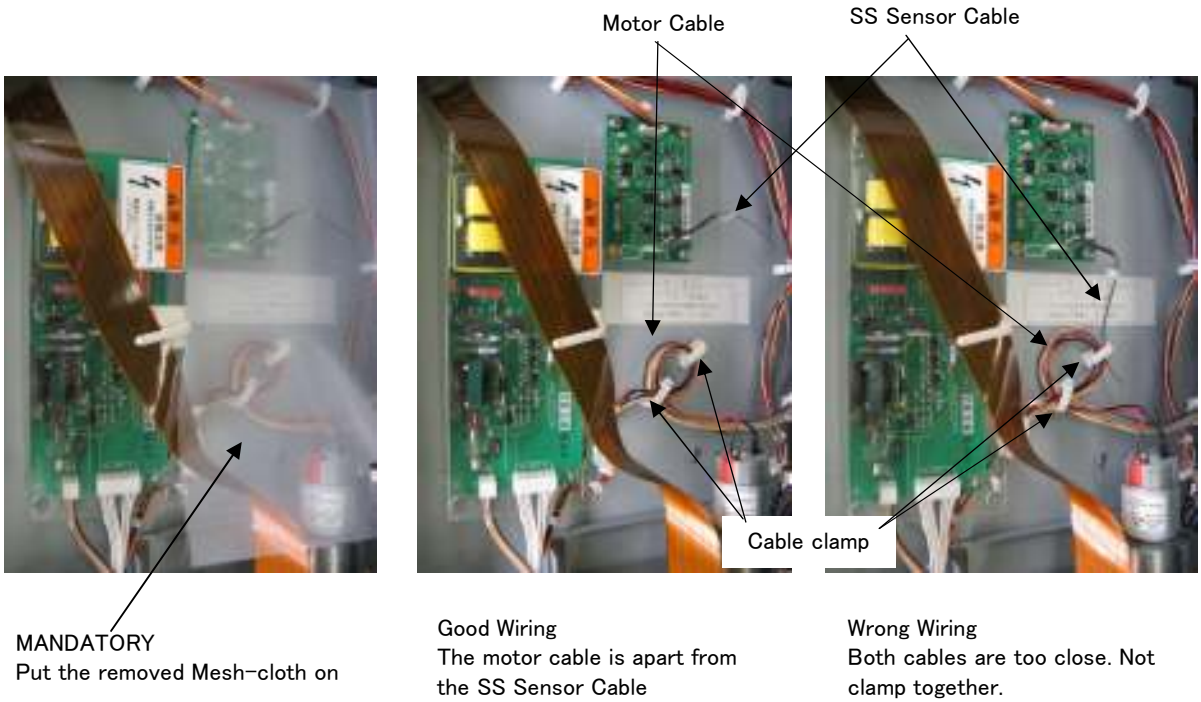
DRV P/K ASSY（CPS614 P/K）

8.3.4 Replacing the SS P/K ASSY (CPS618 P/K)

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover (L), (R). For instructions, please refer to “8.1 Preparation”
② Unscrew 4 bind-head screws on the Eject Guide.
For instructions, please refer to “8.3.5 Replacing Scanner ASSY”
③ Remove the Mesh-Cloth.
④ Disconnect 2 connectors (J101, J102) from the SS P/K ASSY (CPS618 P/K)
⑤ Unscrew 2 bind-head screws attached to the SS P/K ASSY (CPS618 P/K), and remove (CPS618 P/K)
⑥ Take the reverse step to attach SS P/K ASSY (CPS618 P/K)
⑦ After replacing the SS P/K ASSY, run the Auto Calibration Test.



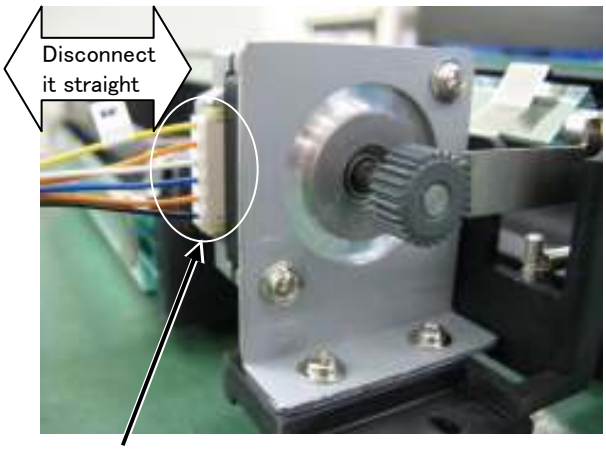


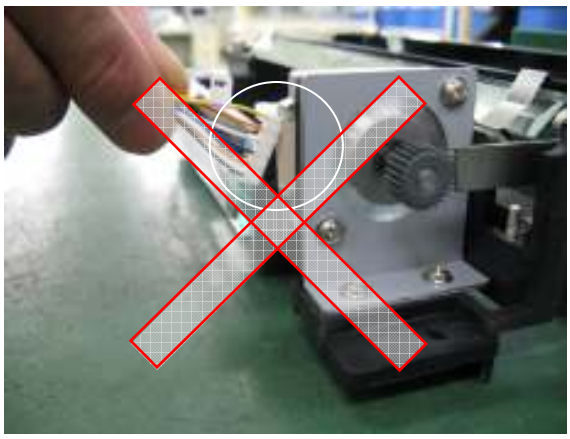
※For instructions, please refer to “8.3.41 Mechanism (M) ASSY Cable Routing”

8.3.5 Replacing the Scanner ASSY

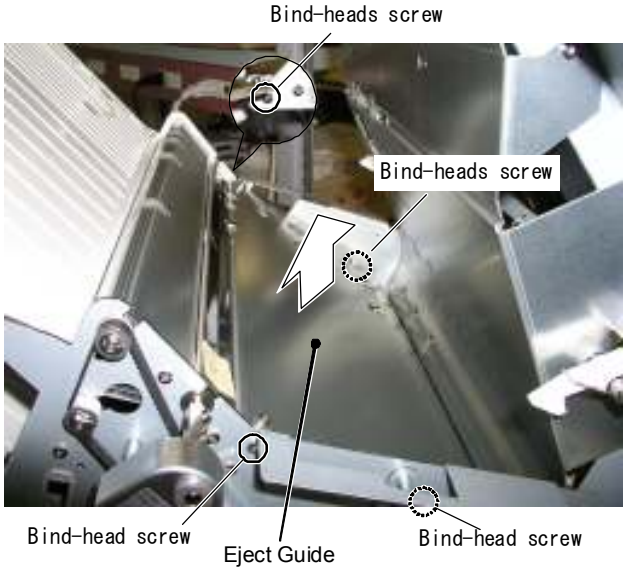
CAUTION
When connecting the mirror motor connector, make sure to connect it straight into the device.

Tools Needed: Magnetic Philips Screwdriver (No.2)

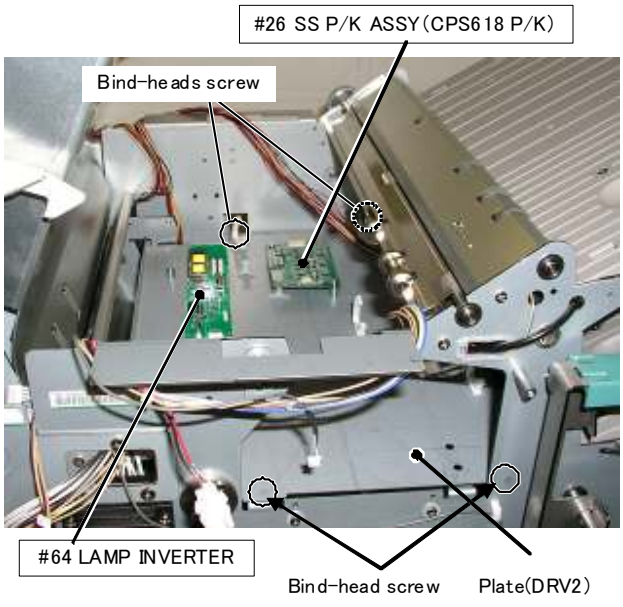




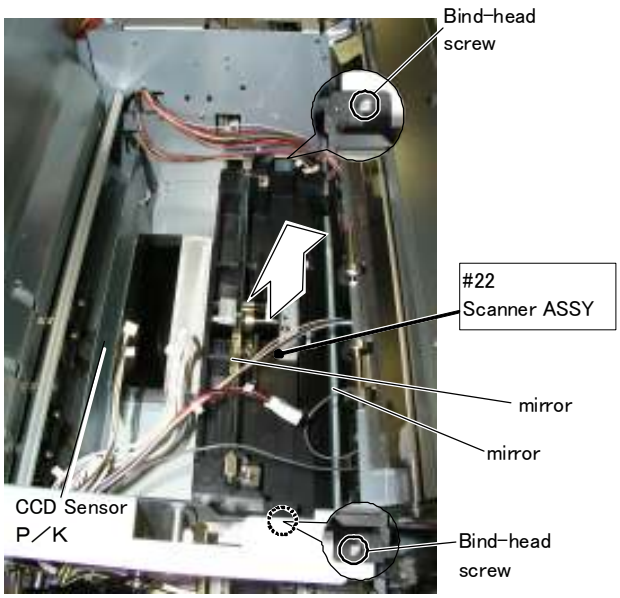
make sure to connect it straight into the device



①Remove the Main Cover (L), (R) Side Cover (R). For instructions, please refer to “8.1 Preparation”
②Unscrew 4 screws on the Eject Guide and remove the Eject Guide
③Remove the Imprinting ASSY. For instructions, please refer to “8.3.9 Replacing the Imprinting ASSY (Imprinting Head)”
④Unscrew 4 bind-head screws on the Plate (DRV2)



⑤ Disconnect 2 connectors (J71, J72) attached to the Lamp Inverter
⑥ Disconnect 2 connectors (J101, J102) attached to SS P/K ASSY (CPS618 P/K)
⑦ Disconnect cable from the Clamp
⑧ When removing the Plate (DRV 2), push the cable to the side so it does not get damaged.
⑨ Remove Cover Sheet assembly. For instructions, please refer to “8.3.14 Replacing the Cover Sheet assembly”
⑩ Remove Lamp ASSY (Front). For instructions, please refer to “8.2.3 Replacing the Fluorescent Lamp”



⑪ Unscrew 2 bind-head screws on the Scanner ASSY

⑫ Disconnect connector (J38) attached to the CCD Sensor Connector (J40F) and the Main P/K ASSY (CPS619 P/K) and remove Scanner ASSY.

For instructions, please refer to “8.3.3 Replacing the DRV P/K (CPS614 P/K)”

Caution:

- Do not damage the cable
- The CCD Sensor P/K (CPS615) should not touch the mirror
- Attach the connector straight into the device



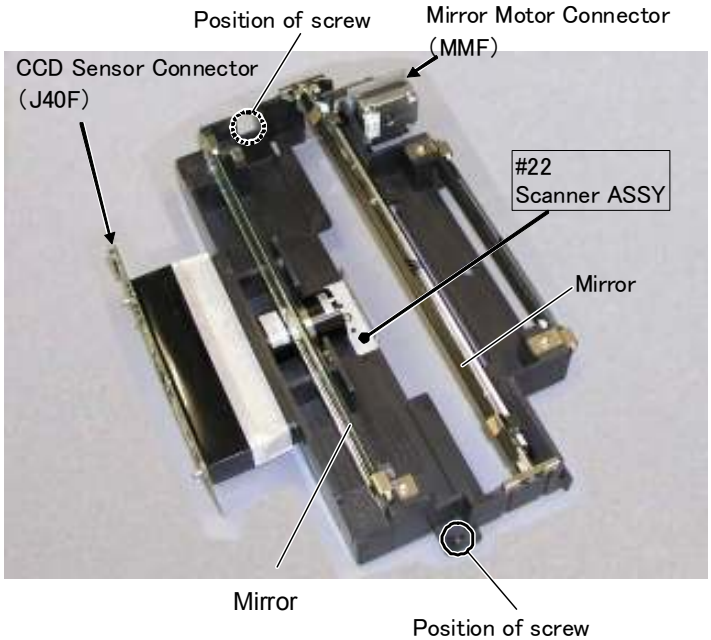
⑬ Attach the maintenance part to the Mirror Motor Cable and take the reverse steps to reassemble it

⚠ CAUTION

To attach the Mirror Motor Connector (MMF) please read the previous page carefully. Attach it straight onto the device

Check if the CCB Sensor Connector is attached. If it is not attached properly, it may cause light density errors

Check cable route “8.3.4” and make sure there is enough distance between the Motor Cable and the Ultra Sonic Sensor Cable. Noise between the 2 could cause errors in the Ultra Sonic Sensor



⑭ Run the Auto Calibration Test.(refer to Chapter6)

8.3.6 Replacing the SS-Sensor (Ultra Sonic Sensor)

Tools Needed: Magnetic Philips Screwdriver (No.2)

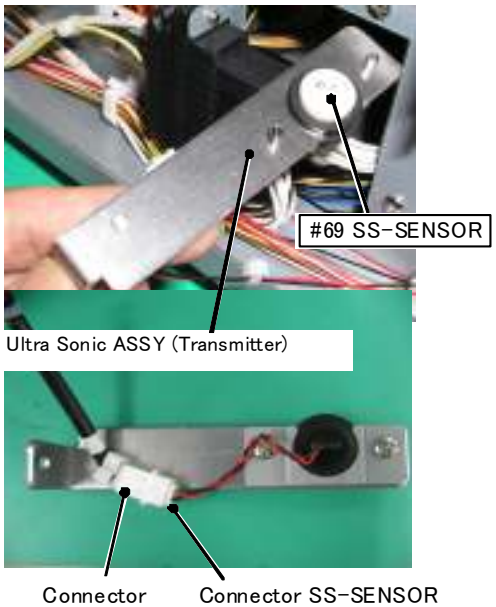
① Remove the Main Cover (L), the Side Cover (R). For instructions, please refer to "8.1 Preparation"
② Unscrew 2 screws on the Main Button ASSY and remove the Main Button ASSY.
③ Unscrew 1 bind-head screw on the Ultra Sonic ASSY (Receptor) and remove the Ultra Sonic ASSY (Receptor)
④ Remove the cable inside the Ultra Sonic ASSY (Receptor). Disconnect and replace the connector attached to the SS-Sensor
⑤ To attach the SS-Sensor, take the reverse steps of ④and③. When attaching the Ultra Sonic ASSY (Receptor), push it in the direction of the arrow then screw the screws.

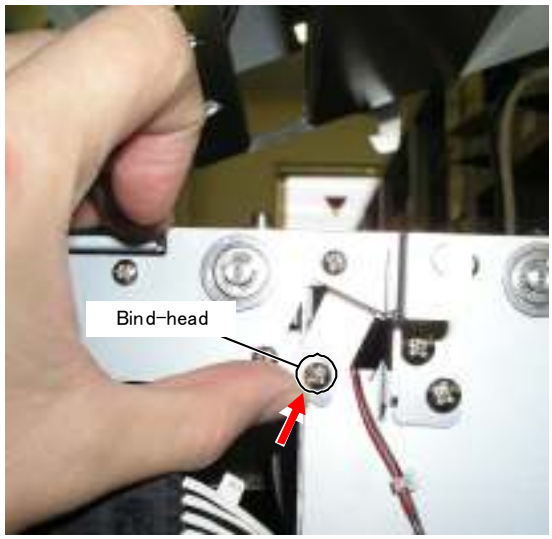
SS-Sensor ASSY(Receptor)



⑥ Unscrew 1 bind-head screw on the Ultra Sonic ASSY (Transmitter) and remove the Ultra Sonic ASSY (Transmitter)
⑦ Remove the cable inside the Ultra Sonic ASSY (Transmitter). Disconnect and replace the connector attached to the SS-Sensor
⑧ To attach the SS-Sensor, take the reverse steps of ⑦and⑥. To attach the Ultra Sonic ASSY (Receptor), push it in the direction of the arrow then screw the bind-head screw.

Ultra Sonic ASSY (Transmitter)





⑨ Take the reverse steps of ②,① to attach the Main Button ASSY.
⑩ After replacing the part, run the Auto Calibration Test. (refer to Chapter 6)

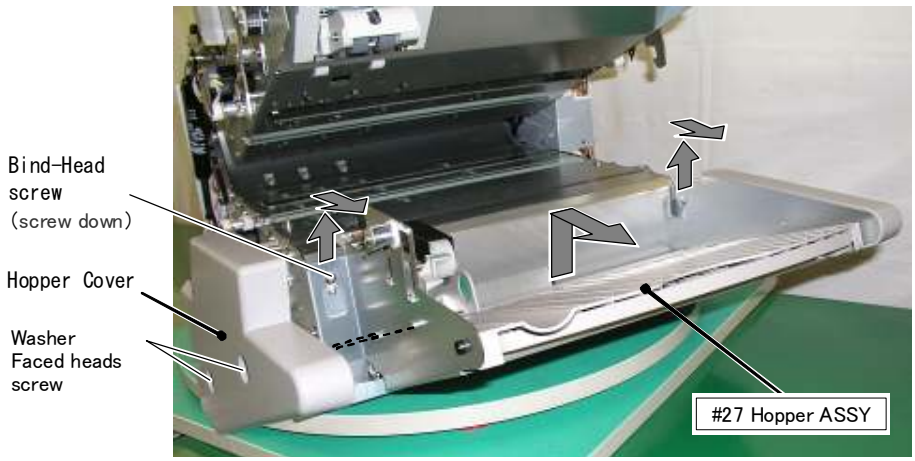
8.3.7 Replacing the Hopper ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Unscrew 2 washer-faced heads and remove the Hopper Cover
② Loosen 1 bind-head screw on the Hopper ASSY
③ Lift the Hopper ASSY, and pull out the Hopper ASSY
④ Take the reverse steps to attach the Hopper ASSY.

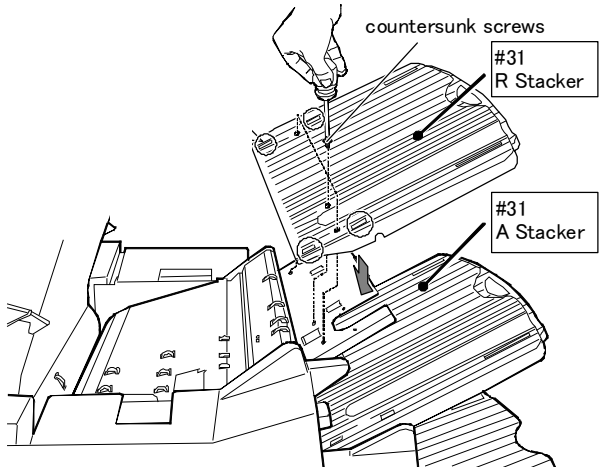
*When screwing the bind-head screws make sure the Hopper ASSY is attached horizontally.

* Be cautious of the position of the Elevator Arm.

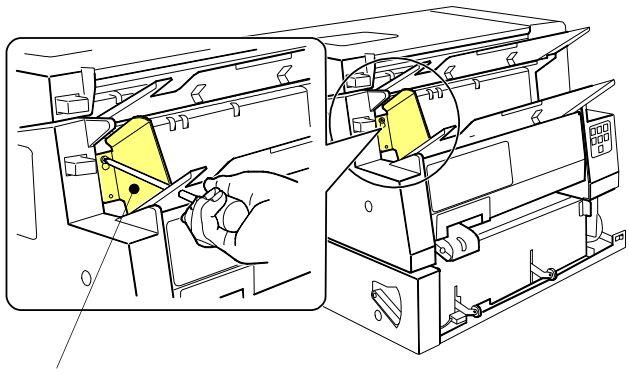


8.3.8 Replacing the Stacker

Tools Needed: Magnetic Philips Screwdriver(No.2)



① Unscrew 3 countersunk screws from the R Stacker.



② Remove the Stacker by pulling it up.

③ Loosen 1 bind-head screw on the Stacker Guide, and remove the Stacker Guide

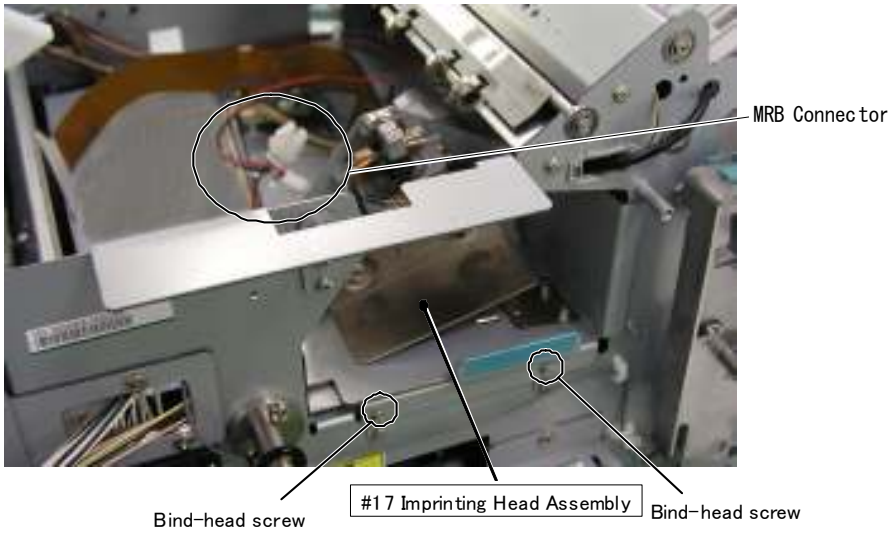
④ To remove the A Stacker, remove the R Stacker first.

⑤ To attach the stackers take the reverse steps.

8.3.9 Replacing the Imprinting Head Assembly

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

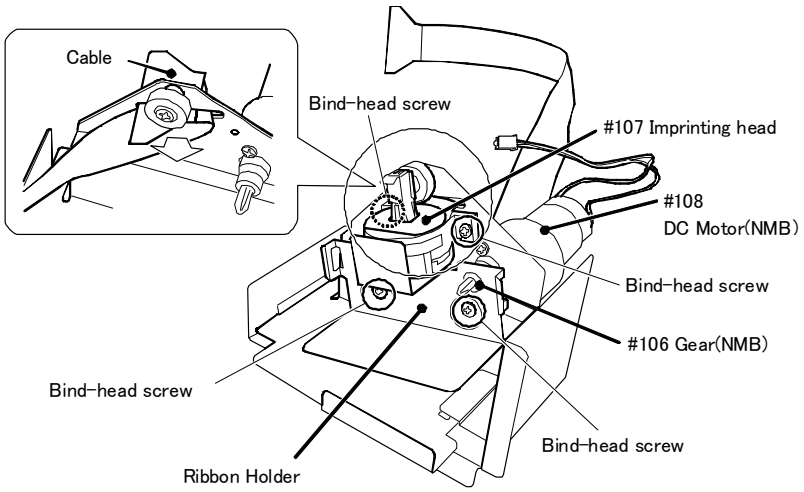
① Remove the Main Cover (L) (R), the Side Cover (L) (R), the Back Cover. For instructions, please refer to "8.1 Preparation". Unscrew 4 bind-head screws on the Eject Guide, and remove the Eject Guide. For instructions, please refer to "8.3.5 Replacing Scanner ASSY"
② Remove the Package Cover. For instructions, please refer to "8.3.2 Replacing Main P/K ASSY (CPS619 P/K)"
③ Remove Main P/K ASSY (CPS 619 P/K). For instructions, please refer to "8.3.2 Replacing Main P/K ASSY (CPS619 P/K)"
④ Disconnect connector J36 from the DRV P/K ASSY (CPS 614 P/K)
⑤ Unscrew 2 bind-head screws on the Imprinting Head Assembly.
⑥ Disconnect the MRB connector and then the Imprinting Head Assembly.



⑦ Unscrew 2 bind-head screws on the Ribbon Holder.
⑧ When replacing the Imprinting Head, bend the tip lightly in the direction of the arrow shown in the below picture.
⑨ Replace Imprinting Head
⑩ Read "9.7 Adjusting the Ribbon Holder" and check the Ribbon Holder, and the position of the gears. Take the reverse steps to attach it onto the device

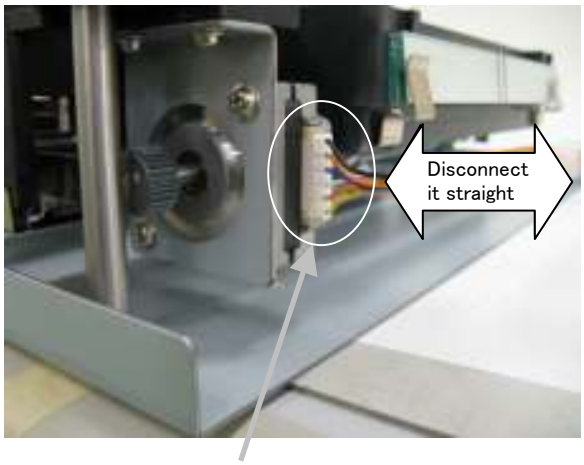
Caution : **For instructions, please refer to "8.3.4 Replacing the SS P/K ASSY (CPS618 P/K)"**
If not, the Ultra sonic Sensor might not work correctly because of noise.

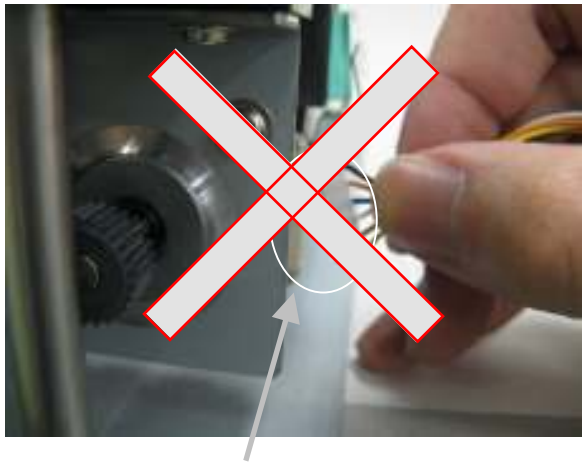
⑪ To adjust the Imprinting Gap, For instructions, please refer to " 9.5 Adjusting the Imprinting Gap"
⑫ Run the print test and check the printing condition.



8.3.10 Replacing the Scanner ASSY

CAUTION
When connecting the Mirror Motor connector, make sure to connect it straight into the device



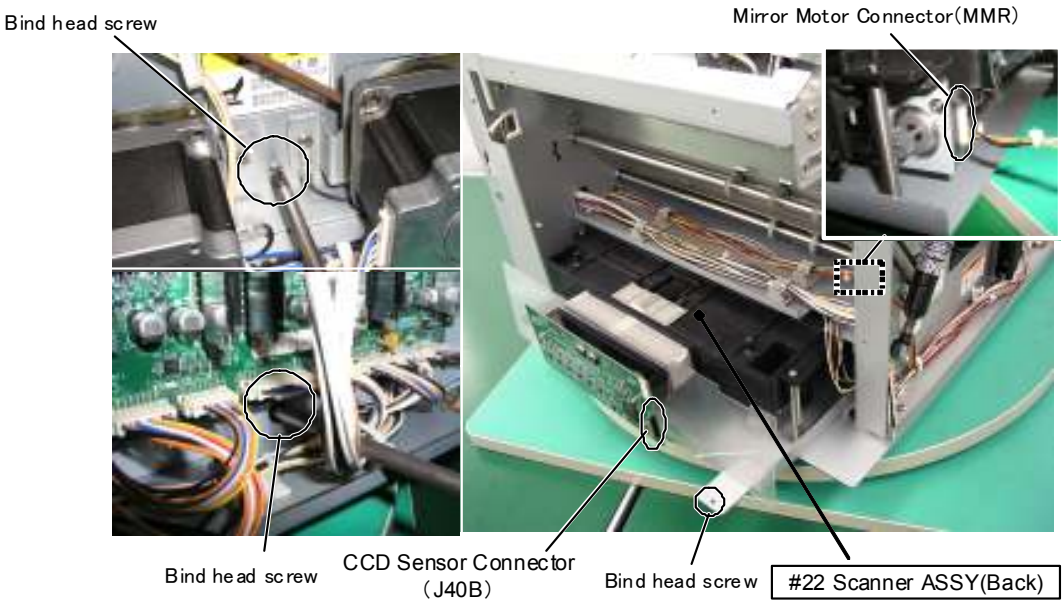


Tools Needed: Magnetic Philips Screwdriver (No.2)

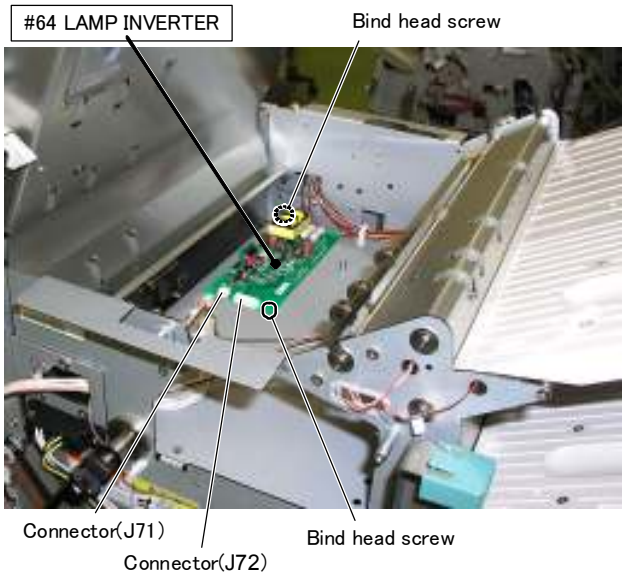
① Remove the Side Cover (L) (R). For instructions, please refer to “8.1 Preparation”
② Remove the PS－ASSY. For instructions, please refer to “8.3.1 Replacing the PS ASSY (electric power unit)”
③ Remove the Lamp ASSY (Back). For instructions, please refer to “8.2.4 Replacing the Fluorescent Lamp (Back)”
④ Remove the Cover glass assembly. For instructions, please refer to “8.3.14 Replacing the Cover sheet assembly and the Cover glass assembly”
⑤ Unscrew 3 bind-head screws on the Scanner ASSY
⑥ Pull the Scanner ASSY and disconnect the CCD Sensor Connector (J40B) and the Mirror Motor connector from the Scanner ASSY.

CAUTION
・To attach the Mirror Motor Connector (MMF), please read the previous page carefully. Attach it straight onto the device
・Check if the CCB Sensor Connector is attached. If it is not attached properly, it may cause light density errors

⑦ Take the above steps to attach the Scanner ABBY.
⑧ After replacing the part, run Auto Calibration Test



8.3.11 Replacing the Lamp Inverter (Front)



Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover (L) (R). For instructions, please refer to "8.1 Preparation"

② Unscrew 4 bind-head screws on the Eject Guide and remove the Eject Guide. For instructions, please refer to "8.3.5 Replacing the Scanner ASSY"

③ Please disconnect connector J72 and J71 attached to the Lamp Inverter

④ Unscrew 2 bind-head screws on the Lamp Inverter and remove the Lamp Inverter.

⑤ Take the reverse steps to attach the Lamp Inverter

Caution: Check cable route "8.3.4" and make sure there is enough distance between the Motor Cable and the Ultra Sonic Sensor Cable. Noise between the 2 parts could cause errors in the Ultra Sonic Sensor

8.3.12 Replacing the Lamp Inverter (Back)



Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove Side Cover (L) (R), and Back Cover. For instructions, please refer to "8.1 Preparation"

② Remove PS ASSY (electric power unit) For instructions, please refer to "8.3.1 Replacing the PS ASSY"

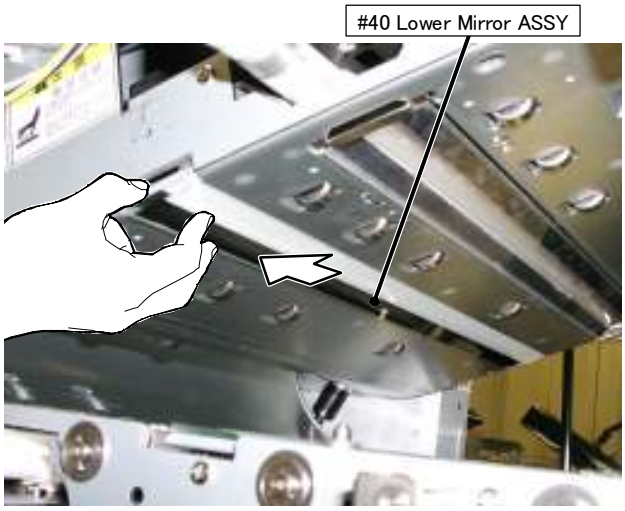
③ Remove Scanner ASSY (Back). For instructions, please refer to "8.3.10 Replacing the Scanner ASSY (Back)".

④ Unscrew 2 bind-head screws on the Lamp Inverter and the Lamp Inverter.

⑤ Disconnect connector J82 and J81 attached on the Lamp Inverter.

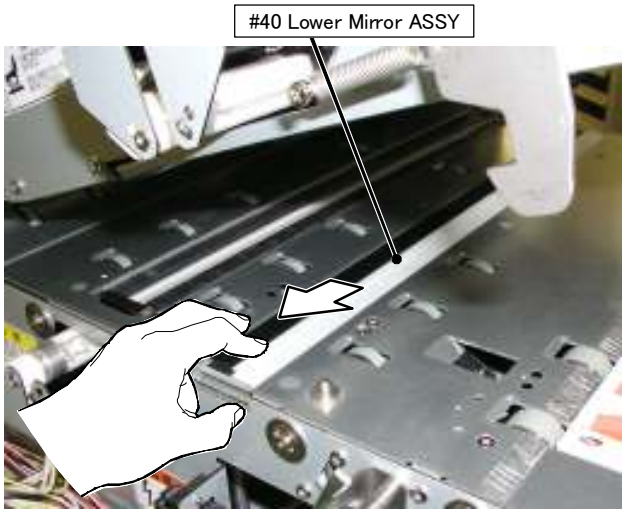
⑥ Take the reverse steps to attach the Lamp Inverter

8.3.13 Replacing the Lower Mirror ASSY



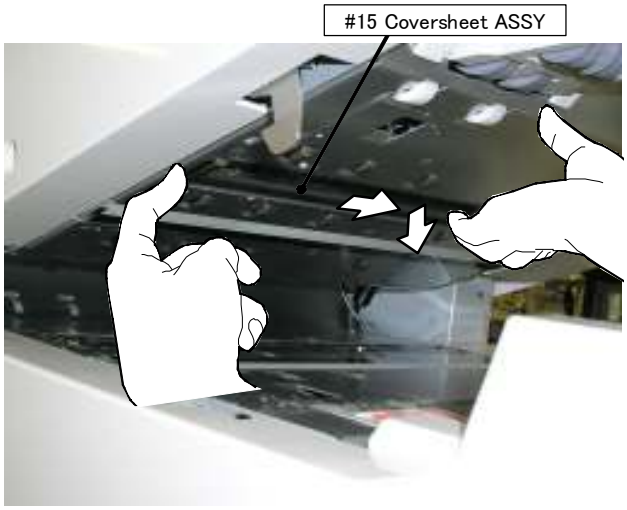
Tools Needed: Magnetic Philips Screwdriver(No.2)

① Remove the Main Cover (L). For instructions, please refer to “8.1 Preparation”
② Slide and pull the Lower Mirror ASSY
③ Take the reverse steps to attach the Lower Mirror ASSY.



① Remove the Side Cover (L). For instructions, please refer to “8.1 Preparation”
② Slide and pull the Lower Mirror ASSY
③ Take the reverse steps to attach the Lower Mirror ASSY.

8.3.14 Replacing the Cover sheet assembly and the Cover glass assembly



Removing the Cover Sheet

① Hold the Cover sheet with your right hand, and use your left finger to slide the sheet in the direction of the arrow.
② Take the reverse step to attach the Cover sheet



Removing the Cover Glass

①Slide the Cover glass assembly with your left finger in the direction of the arrow.

②Take the reverse step to attach the Cover glass

8.3.15 Replacing the Drive Roller

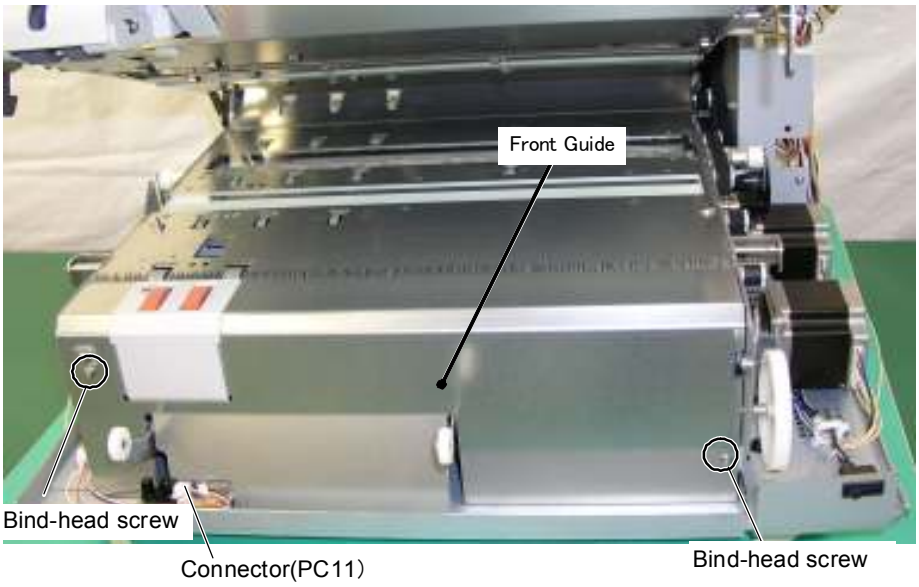
Tools Needed: Magnetic Philips Screwdriver、 Long Nose Pliers、E-ring Removal

① Remove the Main Cover (L) (R), the Side Cover (L)(R), and the Back Cover. For instructions, please refer to "8.1 Preparation"

② Remove the Hopper ASSY. For instructions, please refer to "8.3.7 Replacing Hopper ASSY"

③ Remove the PS ASSY. For instructions, please refer to "8.3.1 Replacing PS ASSY"

④ Unscrew 2 bind-head screws on the Front Guide and remove Front Guide.



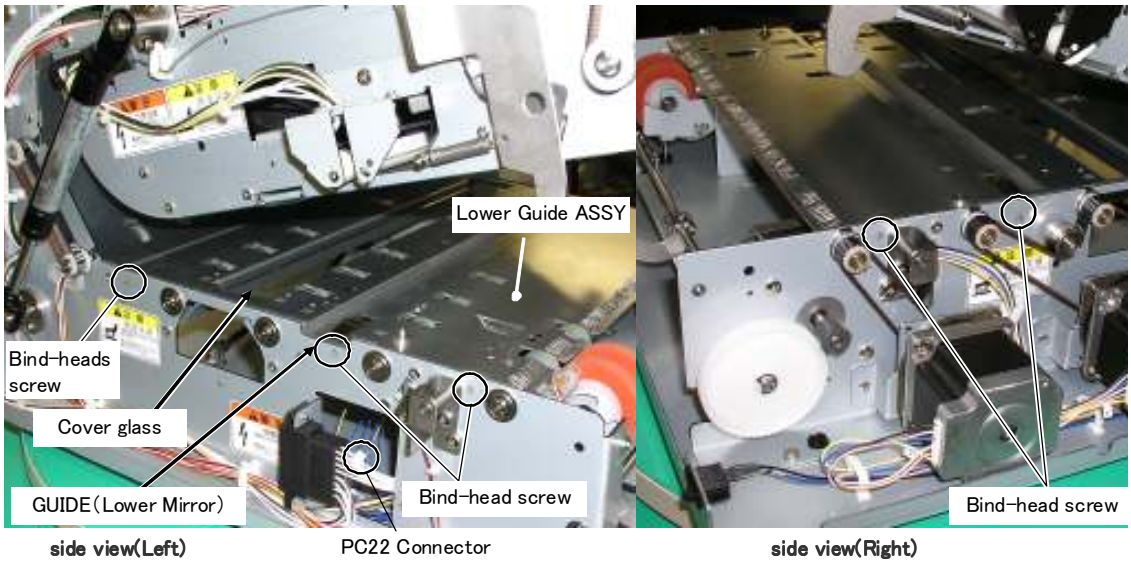
⑤ Remove the Guide (Lower Mirror), the Cover Glass ASSY. For instructions, please refer to "8.3.14 Replacing the Cover glass assembly"

⑥ Unscrew 5 bind-head screws on the Lower Guide ASSY

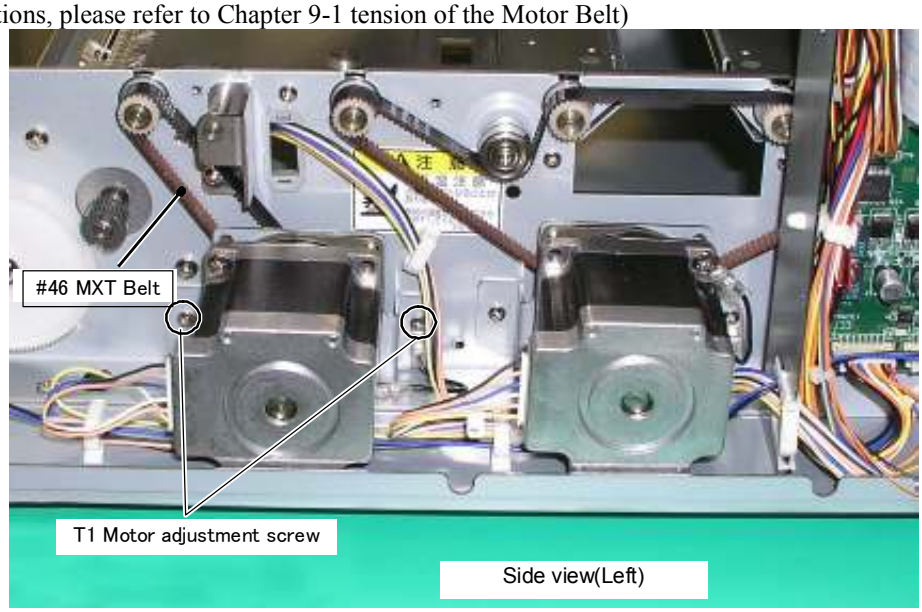
⑦ Disconnect connector PC22

⑧ Disconnect connectors 20L, PC21, and PC31

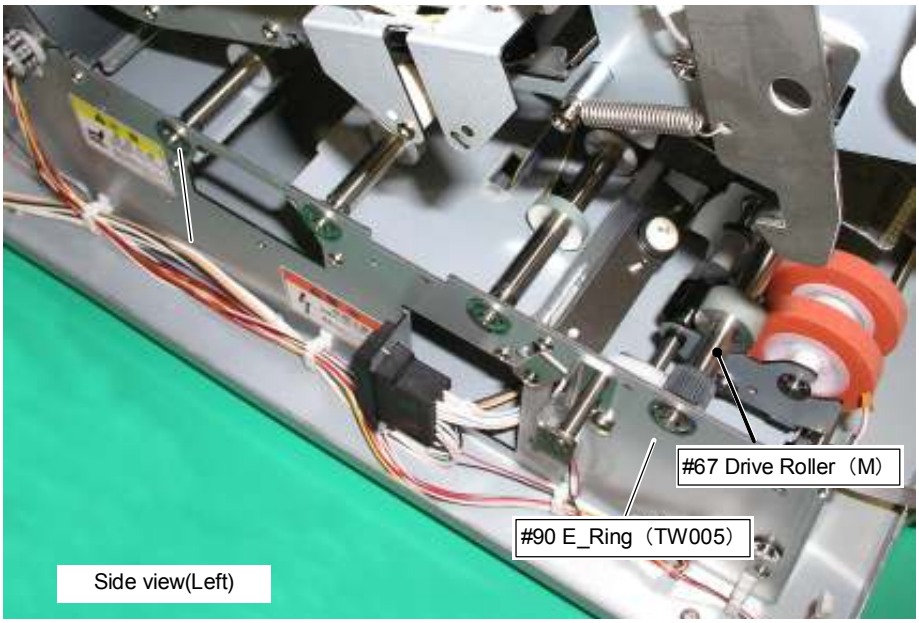
⑨ Remove Lower Guide ASSY from the device.



⑪ Loosen the screw on the Stepping Motor and remove the MXL Belt.
(For instructions, please refer to Chapter 9-1 tension of the Motor Belt)



⑫ Remove the Stopper Ring from the T1 Driver Roller. Slide it to the right and remove it.



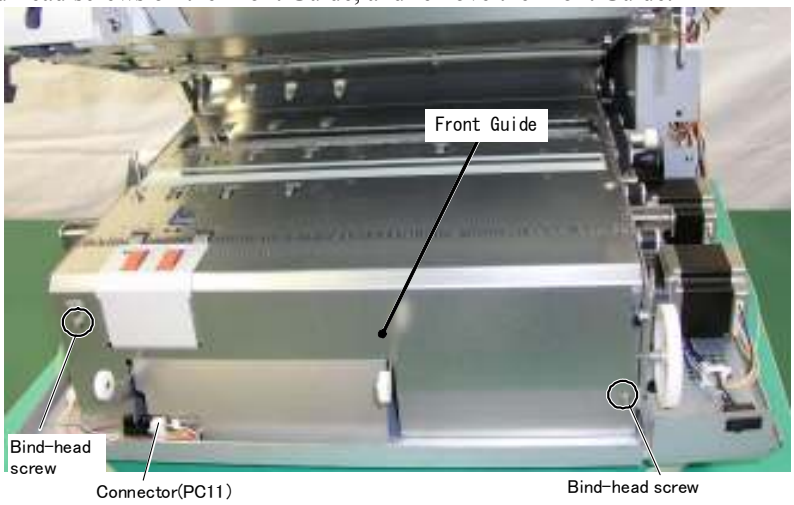
⑬ Take the reverse step to attach the Motor.
(For instructions, please refer to Chapter 9-1 tension of the Motor Belt)

8.3.16 Replacing the Reverse ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

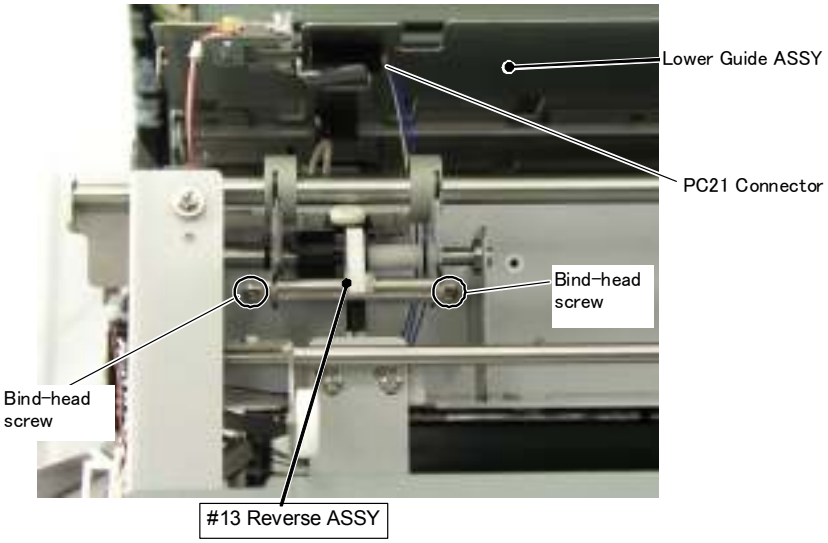
① Remove the Hopper ASSY. For instructions, please refer to “8.3.7 Replacing the Hopper ASSY”

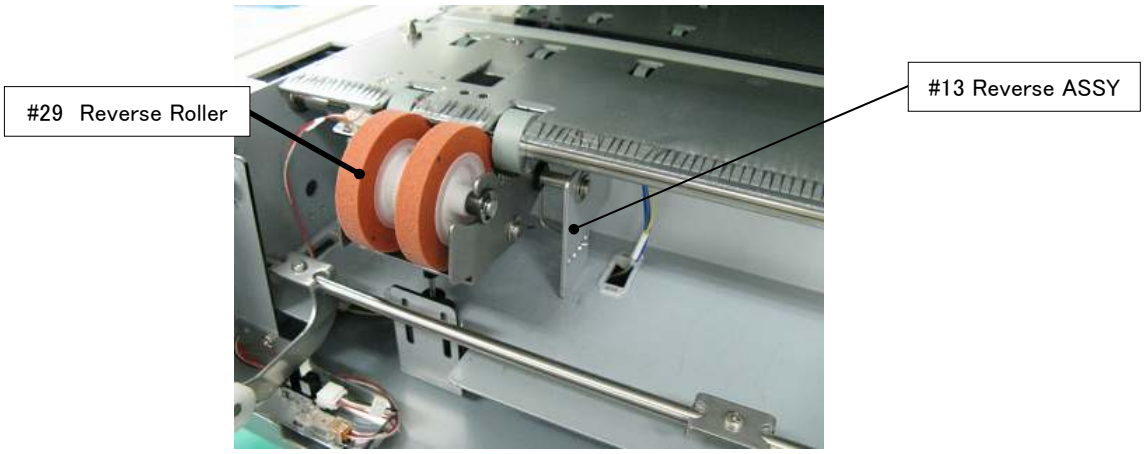
② Unscrew 2 bind-head screws on the Front Guide, and remove the Front Guide.



③ Remove the Reverse Roller ASSY by lifting the Reverse Roller ASSY

④ Unscrew 2 bind-head screws on the Reverse ASSY. Slide the Reverse ASSY to the right and rotate the device to remove Reverse ASSY





⑤ Take the reverse steps to attach the Reverse ASSY

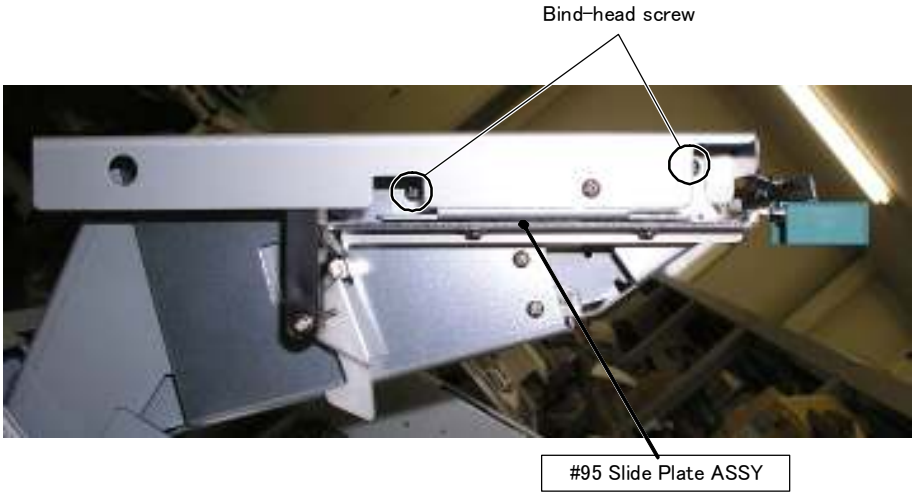
⑥ After replacing the Reverse ASSY, For instructions, please refer to “9.4 Checking the Reverse Roller Pressure” and check the pressure.

8.3.17 Replacing the Slide Countersunk ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Top Cover . For instructions, please refer to “8.1 Preparation”
（Keep the Top Cover open）

② Unscrew and replace 2 bind-head screws on the Slide Plate ASSY

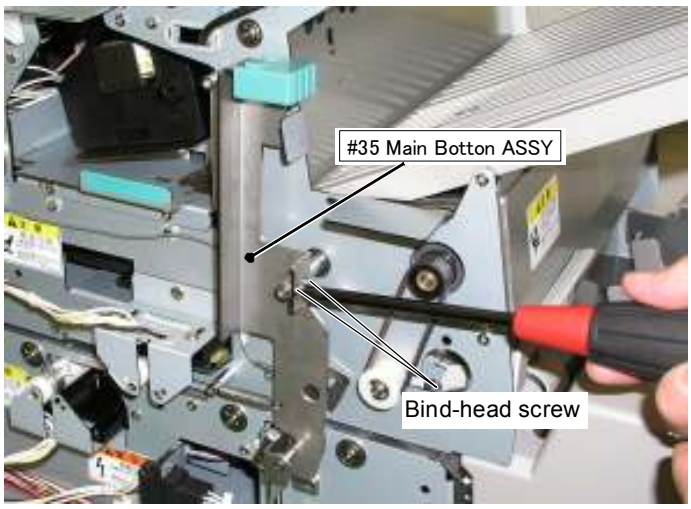


8.3.18 Replacing the Main Button

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover (L), the Side Cover (L). For instructions, please refer to “8.1 Preparation”

② Unscrew and replace 2 bind-head screws on he Main Button ASSY



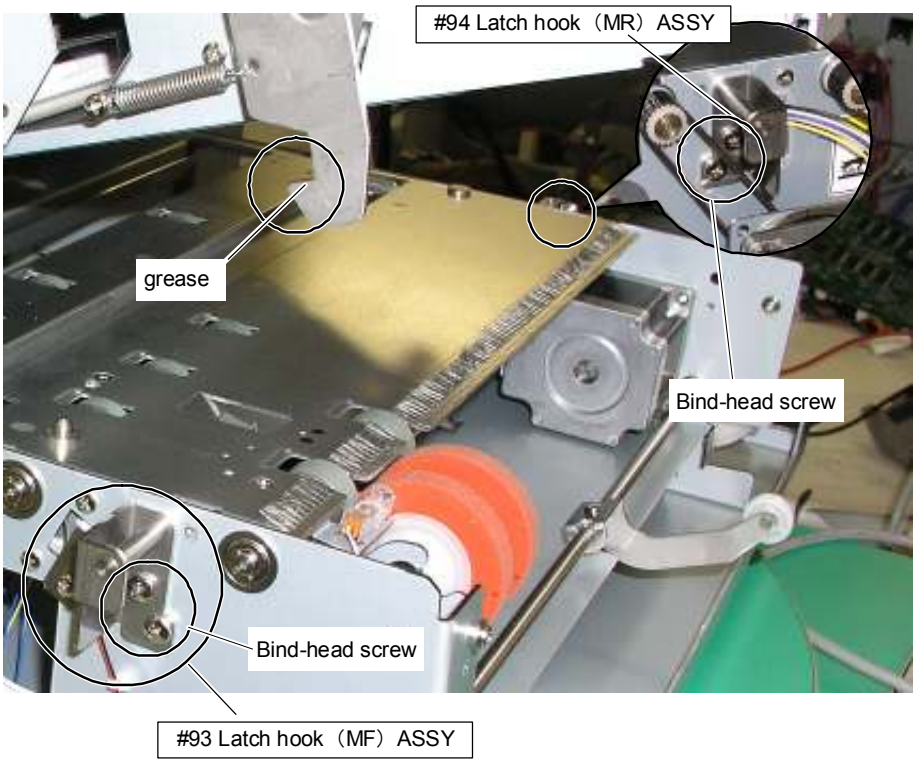
③Replace the Main Latch (R)

8.3.19 Replacing Latch hook (MF) ASSY, Latch hook (MR) ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2), grease

① Remove the Side Cover (L) (R). For instructions, please refer to “8.1 Preparation”
（Keep the Top Cover open）

② Unscrew the bind-head screw on the Latch hook (MF) ASSY and Latch hook (MR) ASSY.



③ After replacing the parts, please refer to “9.2 Checking the Upper Guide Gap” to check and adjust the location of the Latch hook .

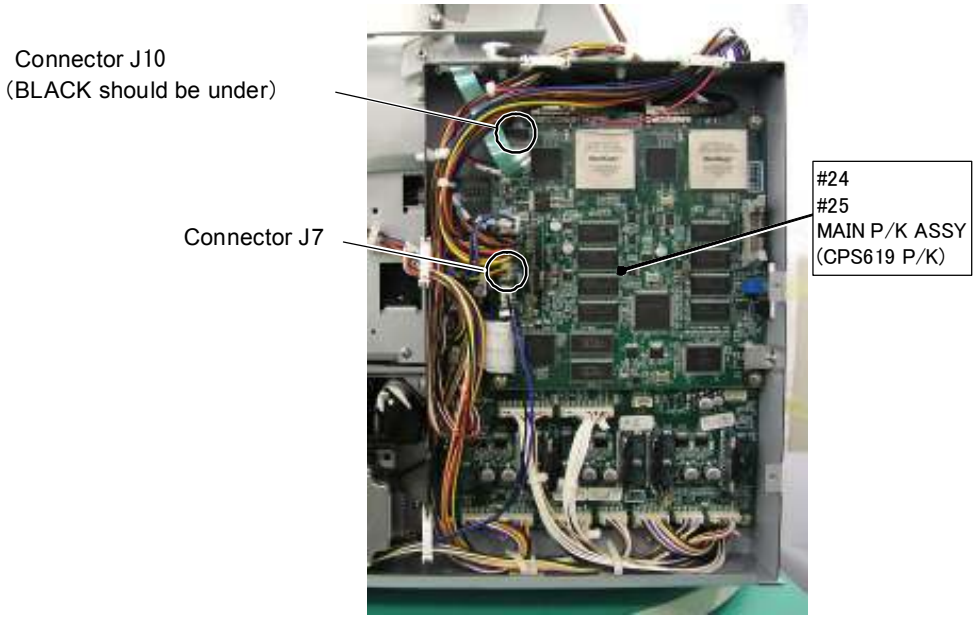
8.3.20 Replacing the Panel

Tools Needed: Magnetic Philips Screwdriver (No.2), Long-nose Pliers

① Remove the Top Cover, the Main Cover (L)(R), and the Side Cover(L) (R). For instructions, please refer to "8.1 Preparation"

② Remove the Package Cover by unscrewing 4 bind-head screws and disconnecting connector J7.

③ Disconnect connector J10 attached on the MAIN P/K ASSY

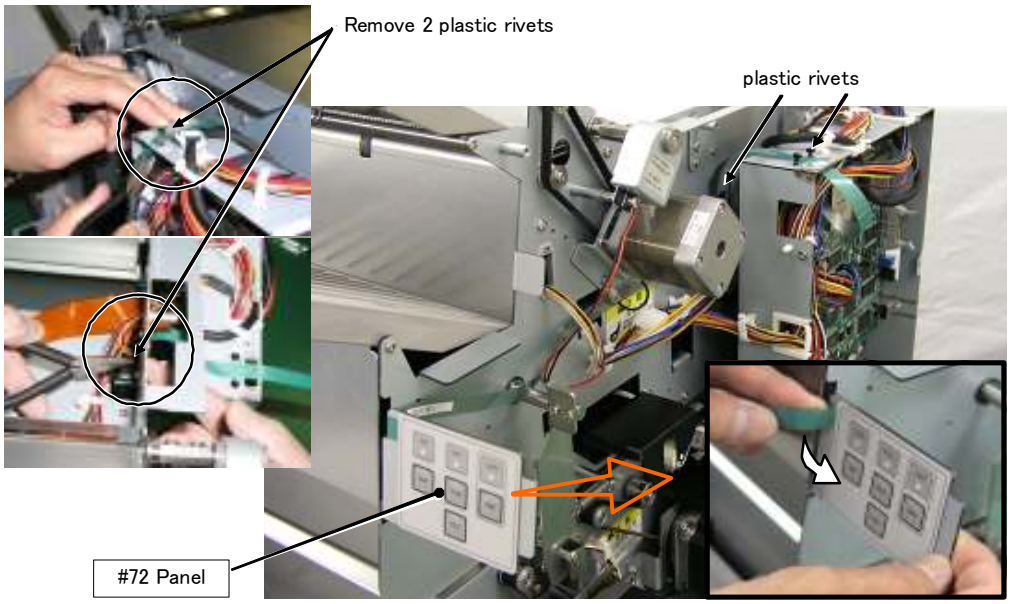


④ Unscrew 4 bind-head screws on the Eject Guide and remove the Eject Guide
for instructions, please refer to "8.3.5 Replacing the Scanner ASSY "

⑤ Remove 2 plastic rivets as shown below.

⑥ Remove the Panel from the countersunk.

⑦ Take the reverse steps to attach the Countersunk onto the device.



Remove the Panel from the countersunk

8.3.21 Replacing the Detection Units

■ Replacing the Sensor (PC11 Emission) and Photo Micro Sensor(L/L Sensor) ASSY

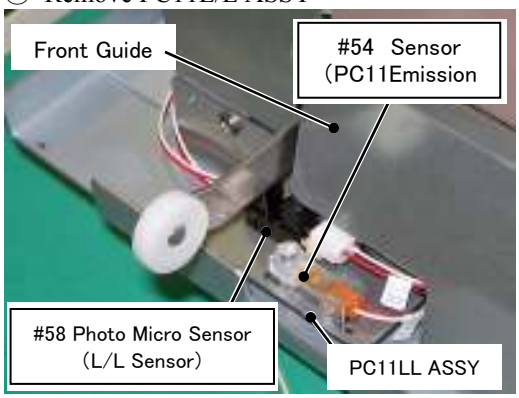
Tools Needed: Magnetic Philips Screwdriver (No.2), Long-nose Pliers

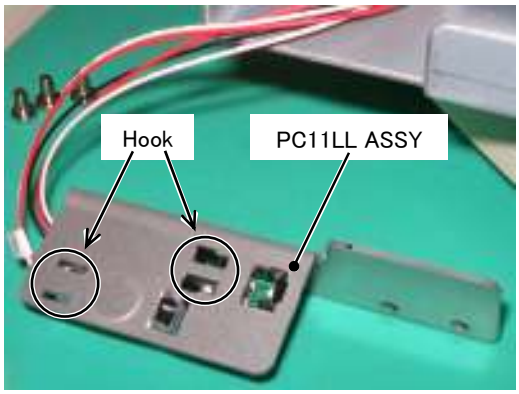
⑧Remove the Top Cover, the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to "8.1 Preparation"

⑨Remove the Hopper. For instructions, please refer to "8.3.7 Replacing the Hopper"

⑩Unscrew 2 screws on the Front Guide and remove the Front Guide.

⑪ Remove PC11L/L ASSY





⑫ Disconnect the sensor from connector

⑬ Remove the sensor;

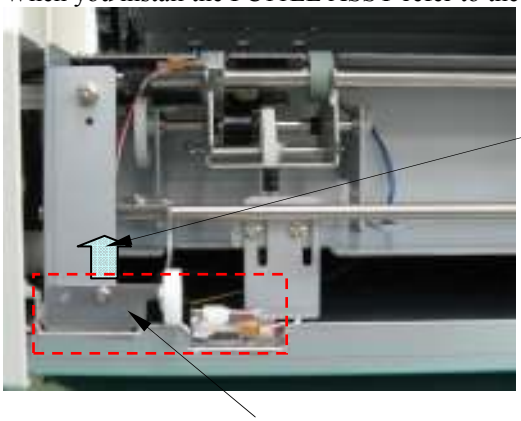
- Remove the clips attached to the Sensor (PC11 Sensor Side) and remove the Sensor
- Remove the clips attached to the Photo Micro Sensor ASSY (L/L Sensor) and remove the Photo Micro Sensor ASSY.

⑭ Attach new Sensors

⑮ Take the reverse steps to attach the Sensor

CAUTION

When you install the PC11LL ASSY refer to the photo below.

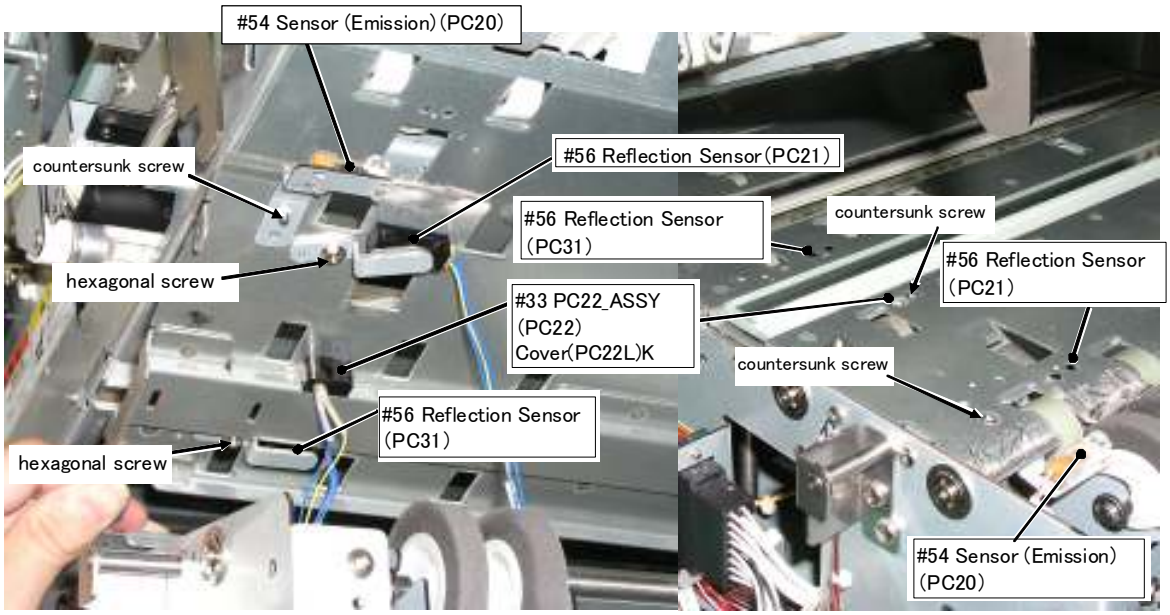


⑯ After replacing the part, run Auto Calibration Test.(refer to Chapter6)

■Replacing the Sensor (PC20 Emission), Reflection Sensor(PC21,PC31), PC22 ASSY, Cover (PC22)K

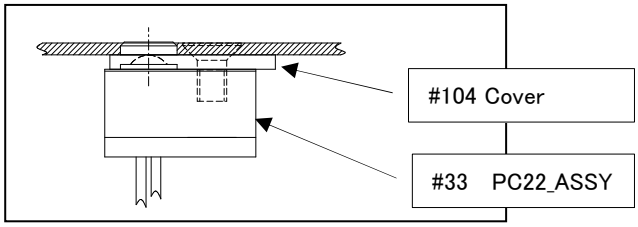
Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to "8.1 Preparation"
② Remove the Hopper. For instructions, please refer to "8.3.7 Replacing the Hopper"
③ Remove the PS ASSY (eclectic power unit). For instructions, please refer to "8.3.1 Replacing the PS ASSY"
④ Unscrew 2 bind-head screws and remove the Front Guide. For instructions, please refer to "8.3.15 Drive Roller".
⑤ Remove the Guide (Lower Mirror) and the Cover glass assembly. For instructions, please refer to "8.3.13 Replacing the Lower Mirror ASSY", "8.3.14 Replacing the Cover Sheet assembly and the Cover glass assembly"
⑥ Unscrew 5 bind-head screws from the Lower Guide ASSY. For instructions, please refer to "8.3.15 Replacing the Drive Roller"
⑦ Disconnect the sensor from the middle connector
⑧ Remove the sensor from the device
- Unscrew 1 countersunk screw from the Lower Guide ASSY, and remove the Sensor (Emission)
- Unscrew 1 hexagonal screw from the Lower Guide ASSY, and remove the Reflection Sensor and the Main Cover (L) ASSY (K)
- Unscrew 1 hexagonal screw from the Lower Guide ASSY, and remove the Reflection Sensor
⑨ Attach new sensors
⑩ Take the reverse step to attach the sensor
⑪ After replacing the part, run the Auto Calibration Test.(refer to Chaper6)



Lower Guide ASSY(Front) Lower Guide ASSY(Back)

PC22_ASSY



■ Replacing the Sensor (PC52 Emission）

Tools Needed: Magnetic Philips Screwdriver (No.2)

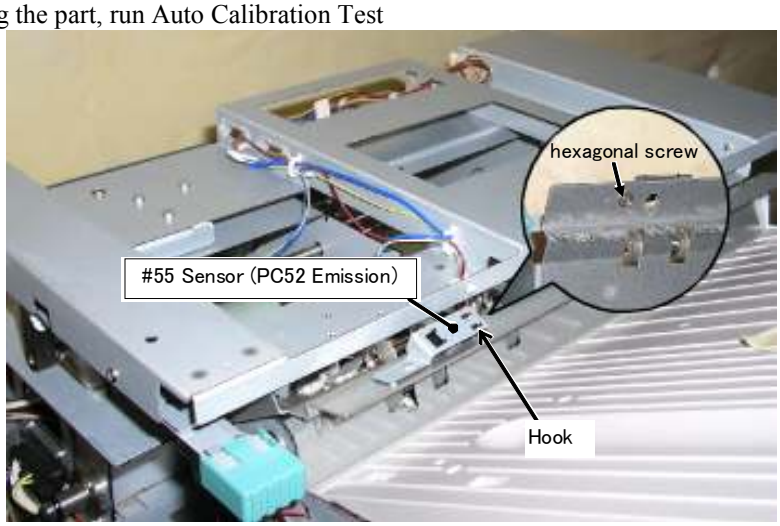
① Remove the Top Cover, the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to “8.1 Preparation”

② Disconnect the sensor from the middle connector, then unscrew 1 hexagonal screw from the Sensor (PC52 Sensor), remove the clips attached to the Sensor (PC52 Sensor) and remove the Sensor

③ Attach new Sensors

④ Take the reverse steps to attach the Sensor

⑤ After replacing the part, run Auto Calibration Test



■ Replacing the Reflection Sensor（PC42）

Tools Needed: Magnetic Philips Screwdriver (No.2)

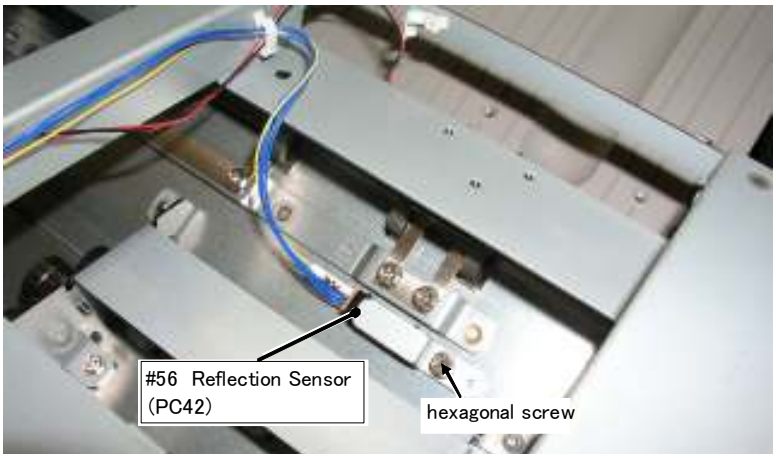
① Remove the Top Cover, the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to “8.1 Preparation”

② Disconnect the Reflection Sensor from the middle connector, then unscrew 1 hexagonal screw from the Reflection Sensor (PC42 Sensor) and remove the Reflection Sensor

③ Attach new Reflection Sensors

④ Take the reverse steps to attach the Sensor

⑤ After replacing the part, run Auto Calibration Test



■ Replacing the Reflection Sensor（PC43）

Tools Needed: Magnetic Philips Screwdriver (No.2)

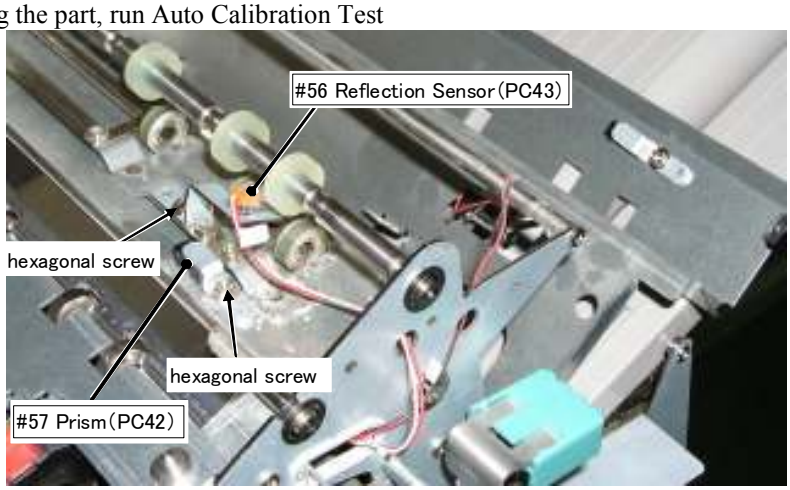
① Remove the Top Cover, the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to “8.1 Preparation”

② Disconnect the Reflection Sensor from the middle connector, then unscrew 1 hexagonal screw from the Reflection Sensor (PC43 Sensor) and remove the Reflection Sensor

③ Attach a new Reflection Sensor (PC43 Sensor)

④ Take the reverse steps to attach the Sensor

⑤ After replacing the part, run Auto Calibration Test



■ Replacing the Sensor (PC52 Emission）

Tools Needed: Magnetic Philips Screwdriver (No.2)

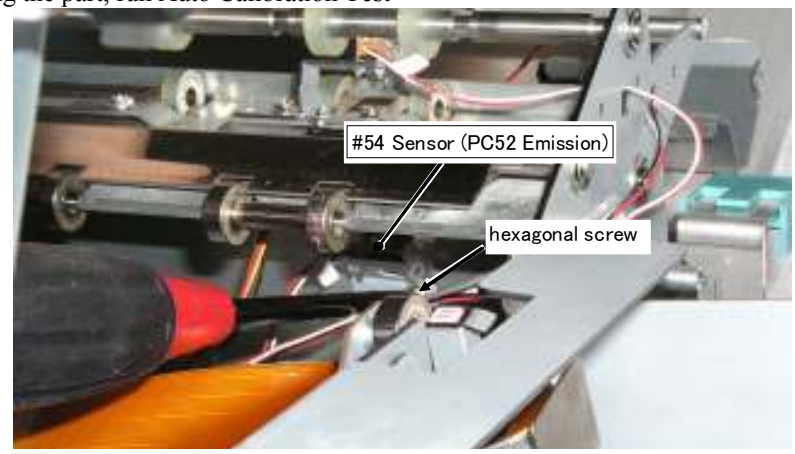
① Remove the Top Cover, the Main Cover (L)(R), the Side Cover(L) (R), and the Back Cover. For instructions, please refer to “8.1 Preparation”

② Disconnect the sensor from the middle connector, then unscrew 1 hexagonal screw from the Sensor (PC52 Sensor), remove the clips attached to the Sensor (PC52 Sensor) and remove the Sensor

③ Attach a new Sensor (PC52 Sensor)

④ Take the reverse steps to attach the Sensor

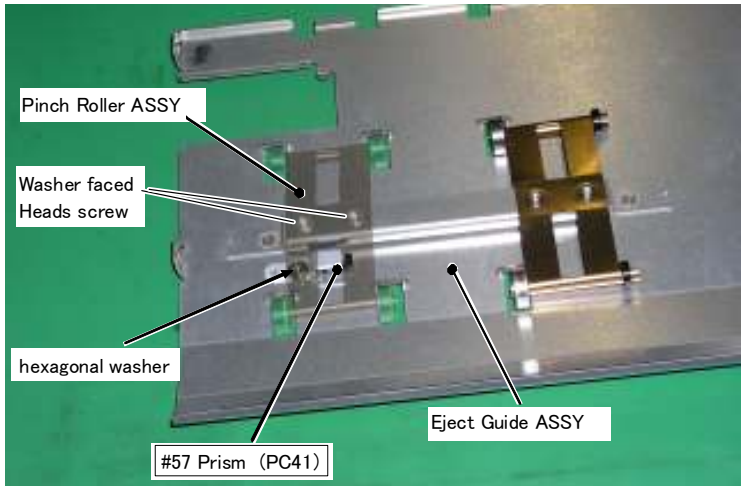
⑤ After replacing the part, run Auto Calibration Test



■ Replacing the Prism(PC41)

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover (L)(R). For instructions, please refer to “8.1 Preparation”
② Unscrew 4 bind-head screws attached to the Eject Guide ASSY, and remove the Eject Guide ASSY. For instructions, please refer to “8.3.5 Replacing the Scanner ASSY”
③ Unscrew 2 washer faced head screws
④ Unscrew 1 hexagonal washer faced head screw attached on the Prism (PC41 Sensor)
⑤ Replace it with a new Prism (PC41 Sensor)
⑥ Take the reverse steps to attach the Prism
⑦ After replacing the part, run Auto Calibration Test

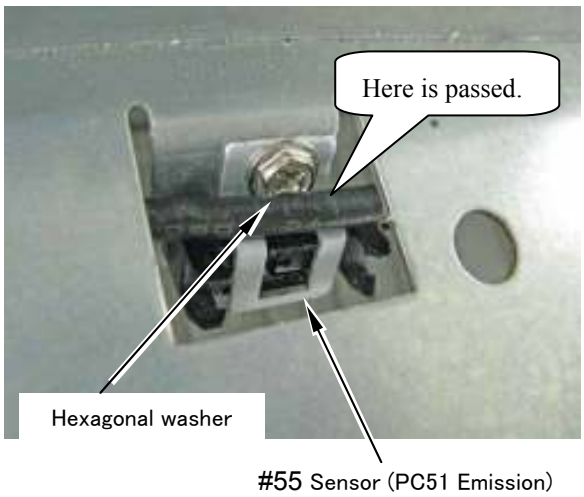


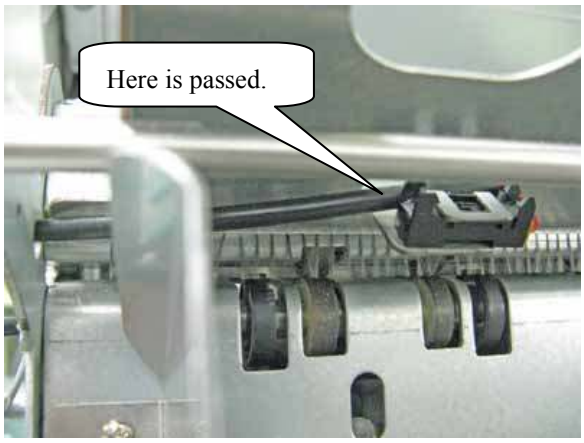
■ Replacing the Sensor (PC51 Emission)

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the R Stacker. For instructions, please refer to “8.3.8 Replacing the Stacker”
② Unscrew 1 hexagonal washer faced head screw attached to the Sensor (PC51), and disconnect the connector from the Sensor (PC51 Sensor) and remove the Sensor (PC51 Sensor)
③ Replace it with a new Sensor (PC51 Sensor)
④ Take the reverse steps to attach the Sensor. Place the Sensor Cable as shown below.
⑤ After replacing the part, run Auto Calibration Test

⚠ CAUTION **Make sure to route the Sensor Cable in-between the space on the Sensor as shown below.**





■ Replacing the Prism (PC21 Sensor), the PC 22 ASSY (PC22 Sensor), the Prism (PC31 Sensor)

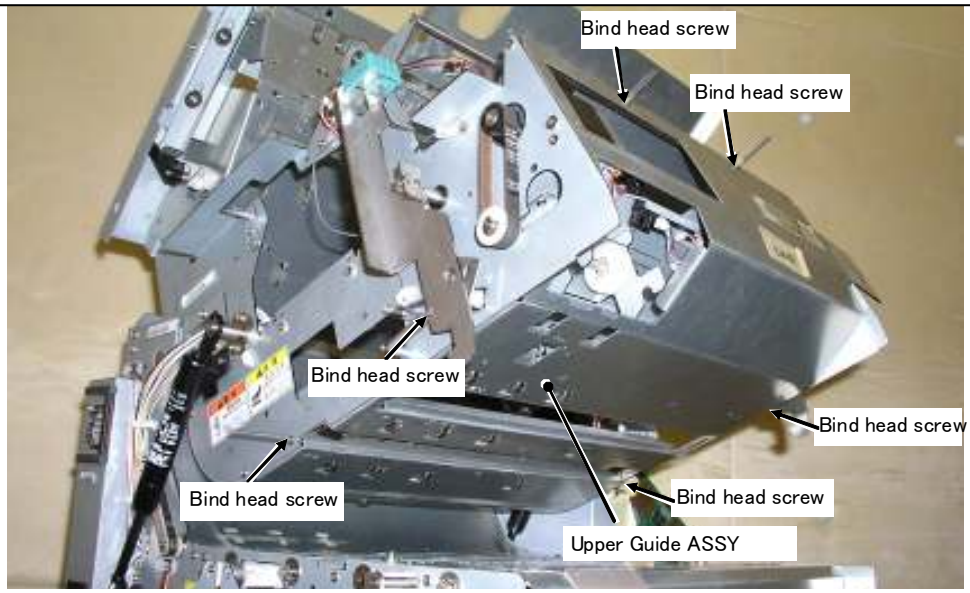
Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover, the Side Cover, and the Back Cover. For instructions, please refer to "8.1 Preparation" for instruction

② Remove the Guide (Lower Mirror), the Cover Sheet. For instructions, please refer to "8.3.13 Replacing the Lower Mirror ASSY"

③ Unscrew 6 bind-head screws on the Upper Guide and remove the Upper Guide.

Caution: When removing the Upper Guide ASSY, disconnect the cable connector on PC22 and unlock the locking wire saddle.

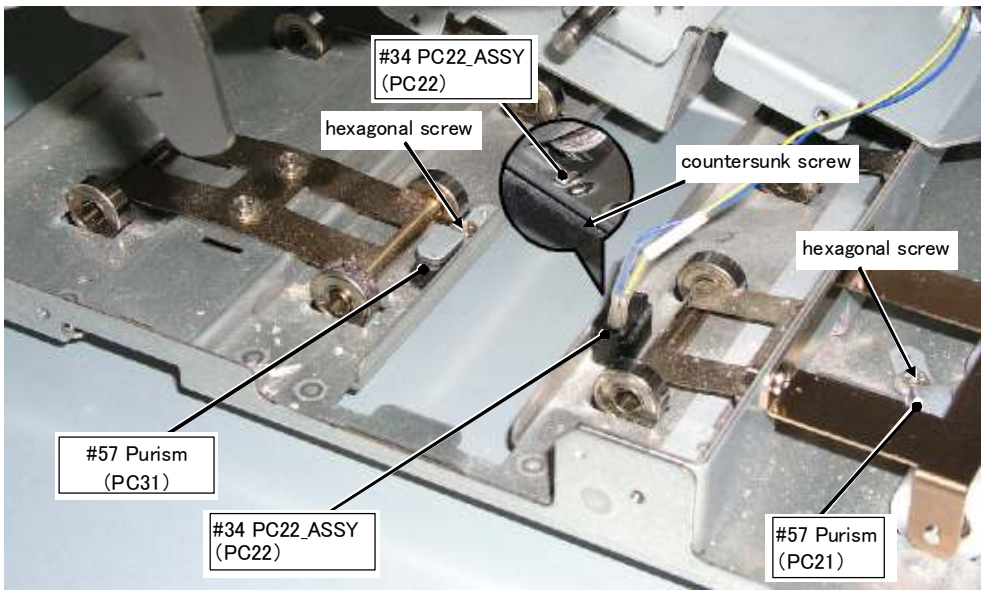


④ Remove the Sensor
- Unscrew 1 hexagonal screw on the Prism (PC21 Sensor), and remove the Prism (PC21 Sensor)
- Disconnect the connector on PC22 ASSY (PC22 Sensor) from the middle connector. Unscrew 1 countersunk screw from the Upper Guide ASSY, and remove the PC22 ASSY (PC22 Connector)
- Unscrew 1 hexagonal screw on the Prism (PC31 Sensor) and remove the Prism

⑤ Attach the new Sensor

⑥ Take the reverse steps to attach the Sensor

⑦ After replacing the part, run Auto Calibration Test



■ Replacing the Sensor (PC11 Sensor), and (PC20 Sensor)

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Main Cover, the Side Cover, and the Back Cover. For instructions, please refer to "8.1 Preparation"

② Remove the Guide (Lower Mirror), the Cover Sheet. For instructions, please refer to "8.3.13 Lower Mirror ASSY"

③ Unscrew 6 screws on the Upper Guide ASSY, then remove the Upper Guide ASSY

H8-37「■ Replacing the Prism (PC21 Sensor), the PC 22 ASSY (PC22 Sensor), the Prism (PC31 Sensor)」

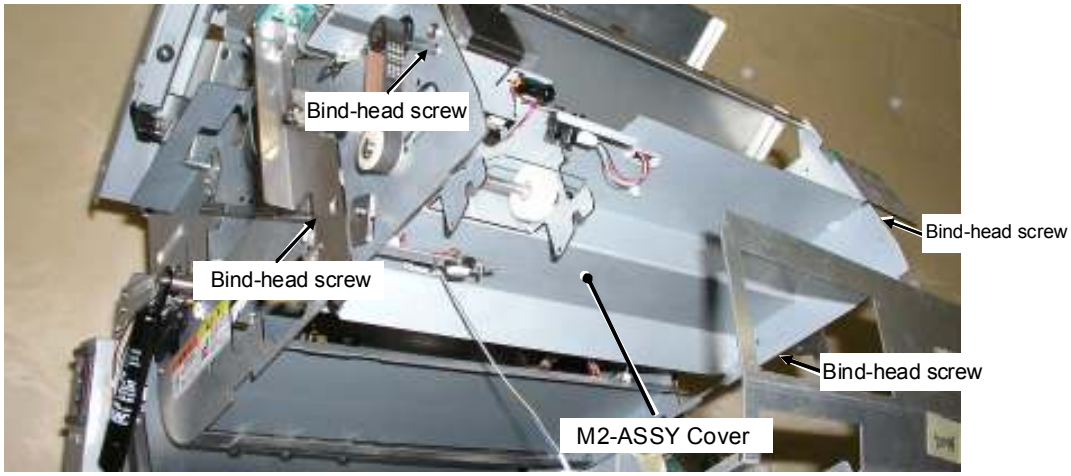
Caution：When removing the Upper Guide ASSY, disconnect the PC22 cable connector, and unlock the locking wire saddle.

④ Remove the Pick Unit ASSY

⑤ Remove the Pick Cover (U)

⑥ Loosen the screws on the Ultra Sonic Sensor

⑦ Unscrew 4 bind-head screws on the M2-ASSY Cover, then remove the M2-ASSY Cover



⑧ Unscrew 2 screws on the D1 Pinch Roller, and remove the Pinch Roller

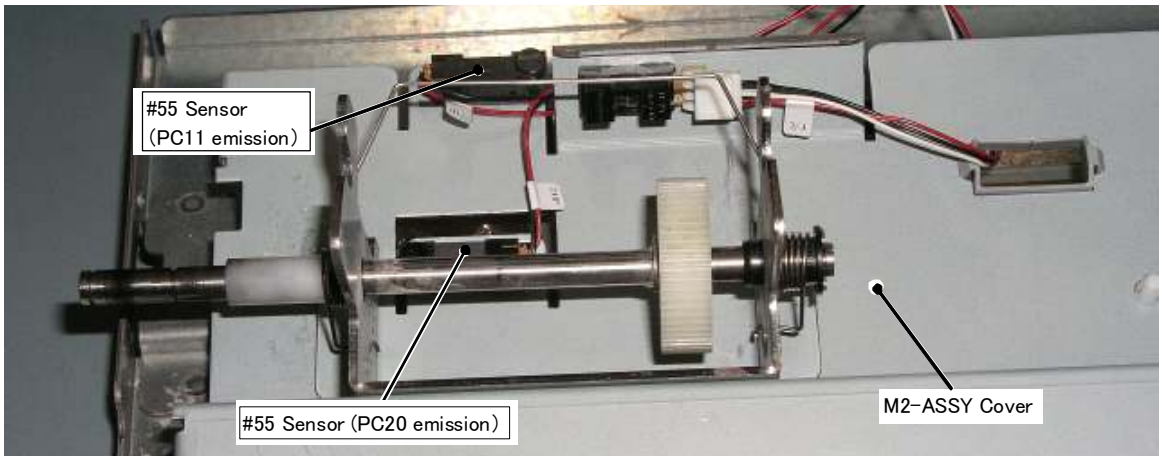
⑨ Remove the Sensor

- Flip the M2-ASSY Cover and remove the clips on the Sensor (PC11 Sensor) and remove the Sensor
- Flip the M2-ASSY Cover and remove the clips on the Sensor (PC20 Sensor) and remove the Sensor

⑩ Attach the new Sensor

⑪ Take the reverse steps to attach the Sensor

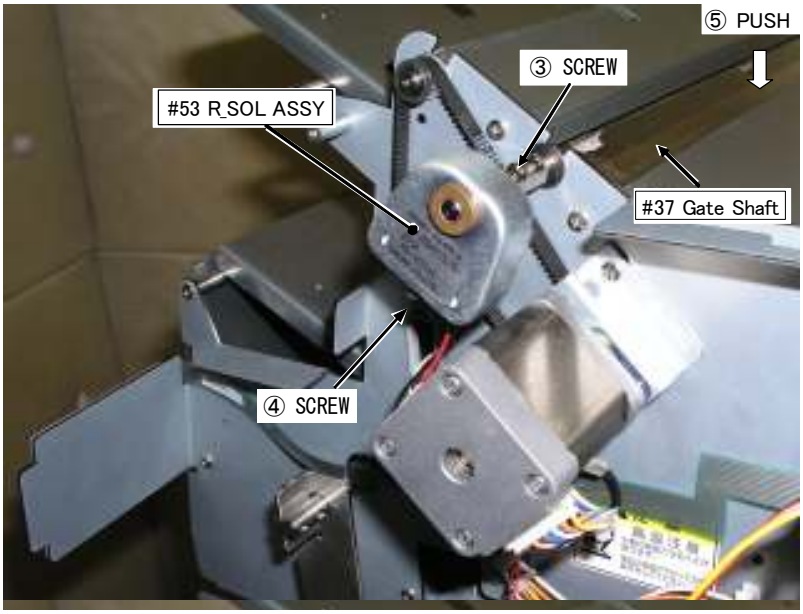
⑫After replacing the part, run Auto Calibration Test

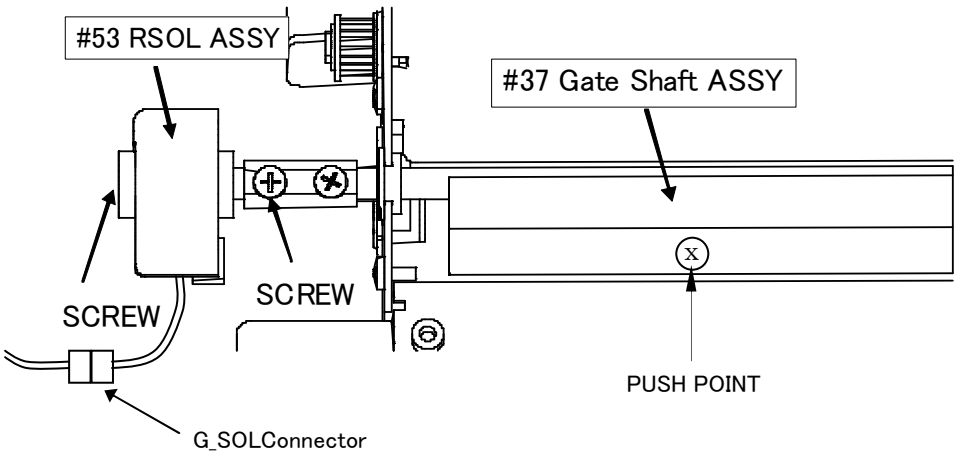


8.3.22 Replacing the R SOL ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove Main Cover(R). “For instructions, please refer to “8.1 Preparation”
② Disconnect the G SOL connector
③ Unscrew 1 screw between the R SOL ASSY and the Gate Shaft.
④ Unscrew 1 screw from the bottom of the R SOL ASSY
⑤ Replace the R SOL ASSY and push the Gate Shaft down and screw 1 screw.
⑥Connect the G SOL ASSY





8.3.23 Replacing the Gas Spring

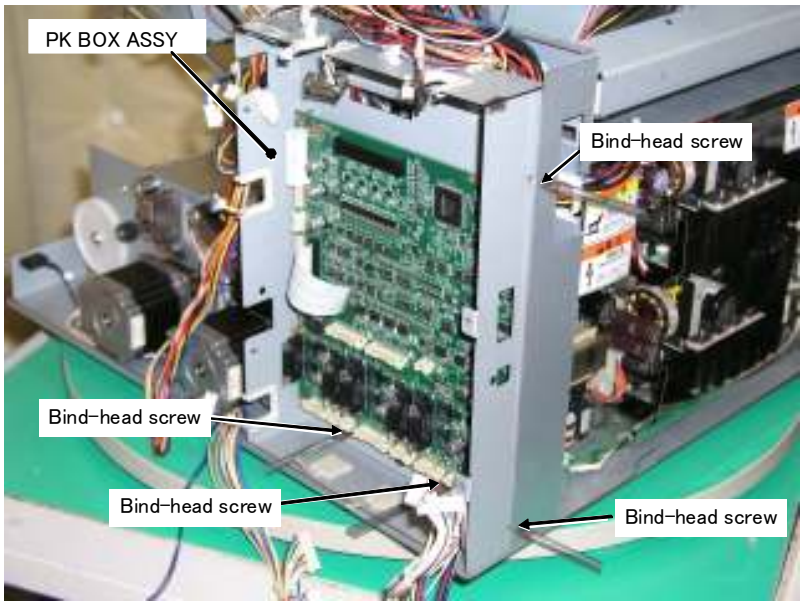
Tools Needed: Magnetic Philips Screwdriver (No.2),
E-ring Removal , Long Nose Pliers

① Remove the Main Cover, the Side Cover(L) (R), and the Back Cover. For instructions, please refer to "8.1 Preparation"

② Remove the MAIN P/K ASSY (CPS619 P/K). (When replacing the Gas Spring on the right side of the device) For instructions, please refer to "8.3.2 Replacing the Main P/K ASSY (CPS619 P/K)

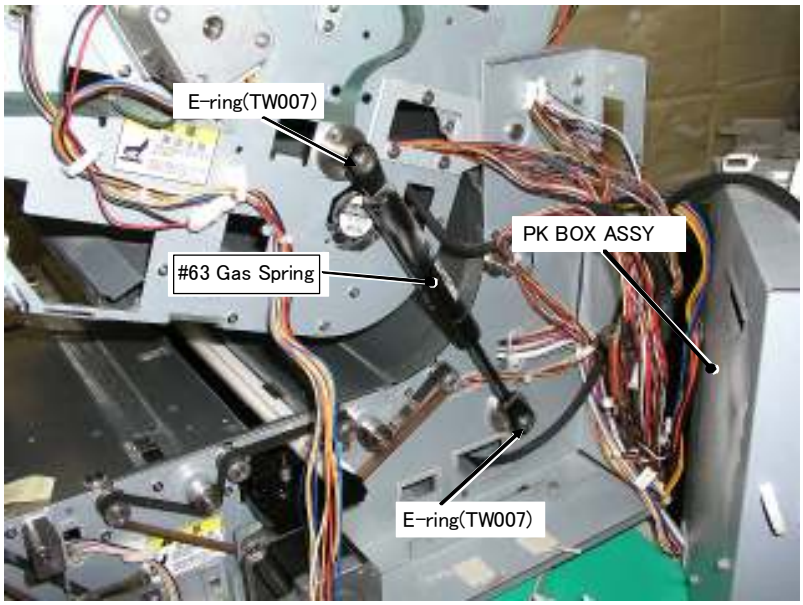
③ Remove the DRV P/K ASSY (CPS619 P/K). (When replacing the Gas Spring on the right side of the device). For instructions, please refer to "8.3.3 Replacing the DRV P/K ASSY (CPS614 P/K)"

④ Unscrew 4 bind-head screws from the PK BOX ASSY and slide it towards you.



⑤ Remove 2 Stopper E-Rings(TW007) and replace the Gas Spring

⑥ Replace one side first, then replace the other side



⑦ To replace the Gas Springs on the left side of the device, take the same steps as ⑤and⑥.

8.3.24 Replacing the Stepping Motor

Tools Needed: Magnetic Philips Screwdriver (No.2)

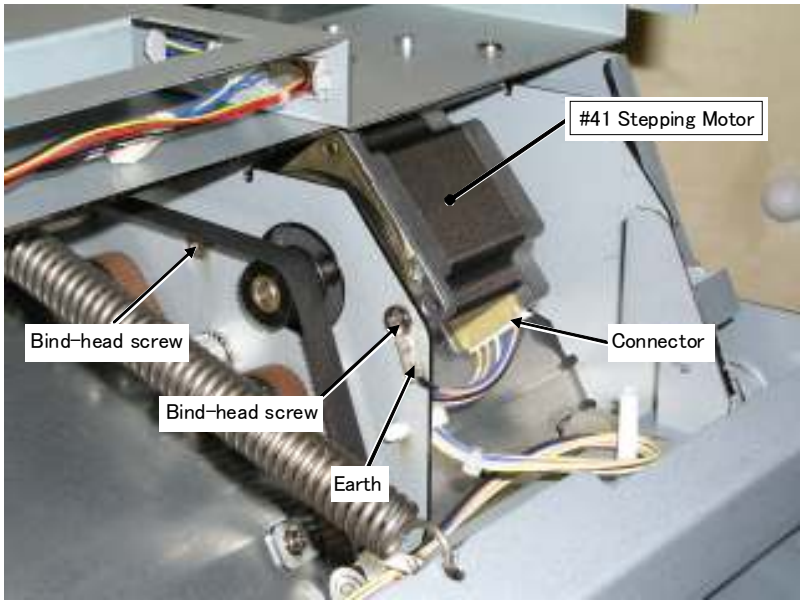
- Stepping Motor: Please refer to “Parts Catalog Fig5 (13)”
- T1 Stepping Motor, Main Stepping Motor: Please refer to “Parts Catalog Fig4 (29)”
- Elevator Stepping Motor: Please refer to “Parts Catalog Fig4 (18)”
- Pick Stepping Motor: Please refer to “Parts Catalog Fig5(12)”

■ Replacing the Eject Motor

① Remove the Main Cover, the Side Cover(L)(R), and the Back Cover. For instructions, please refer to “8.1 Preparation”

② Disconnect the Connector

③ Unscrew 2 bind-head screws from the Stepping Motor and remove the Stepping motor from the device.



④Unscrew 2 screws from the Anti-vibration rubber and replace the stepping motor



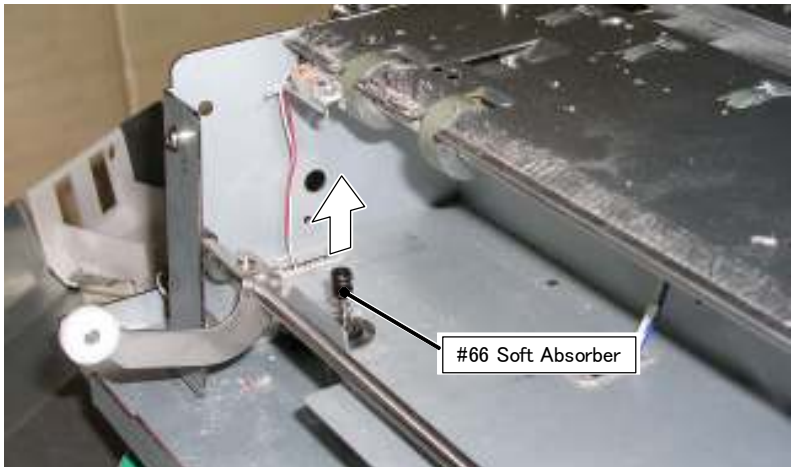
⑤ Take the reverse step to attach the Stepping Motor

⑥ After replacing the belt read “9.1 Checking the Tension of the Belt” and adjust the belt tension on each motor

8.3.25 Replacing the Soft Absorber

Tools Needed: Magnetic Philips Screwdriver (No.2)

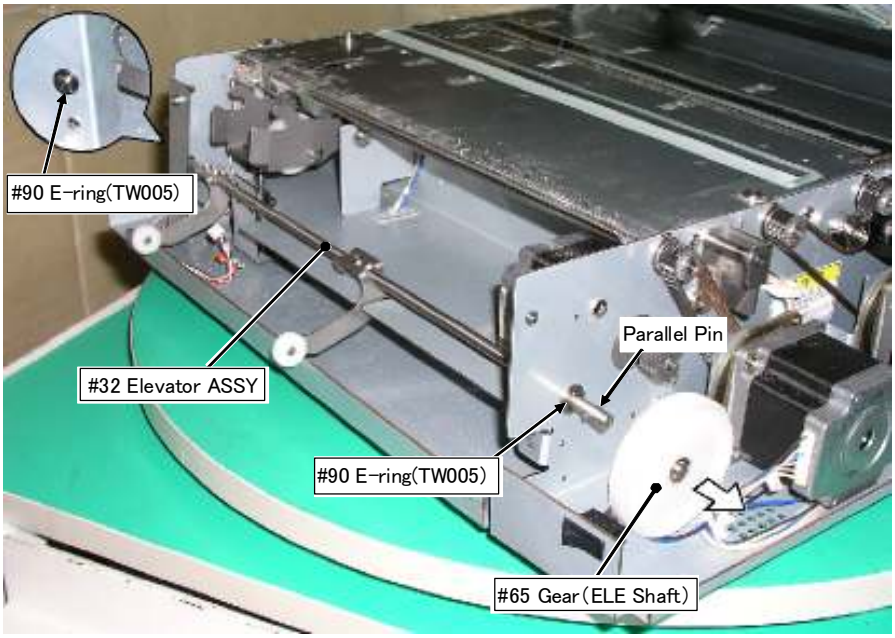
① Remove the Hopper ASSY. For instructions, please refer to “8.3.7 Replacing the Hopper ASSY”
② Unscrew 2 screws from the Front Guide. For instructions, please refer to “8.3.16 Replacing the Reverse ASSY”
③ Lift the Revere Roller ASSY and remove it from the device.
④ Unscrew 2 bind-head screws from the Reverse ASSY and slide the Reverse ASSY to the right. Rotate the Reverse ASSY and remove it from the device. For instructions, please refer to “8.3.16 Replacing the Reverse ASSY”
⑤ Lift the Soft Absorber up and remove it from the device
⑥ Put the spring attached to the old Soft Absorber onto the new Soft Absorber.
⑦ Take the reverse steps to attach the Soft Absorber.
⑧ Read “9.4 Checking the pressure of the Reverse Roller” and adjust the pressure on the Soft Absorber



8.3.26 Replacing the Elevator ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

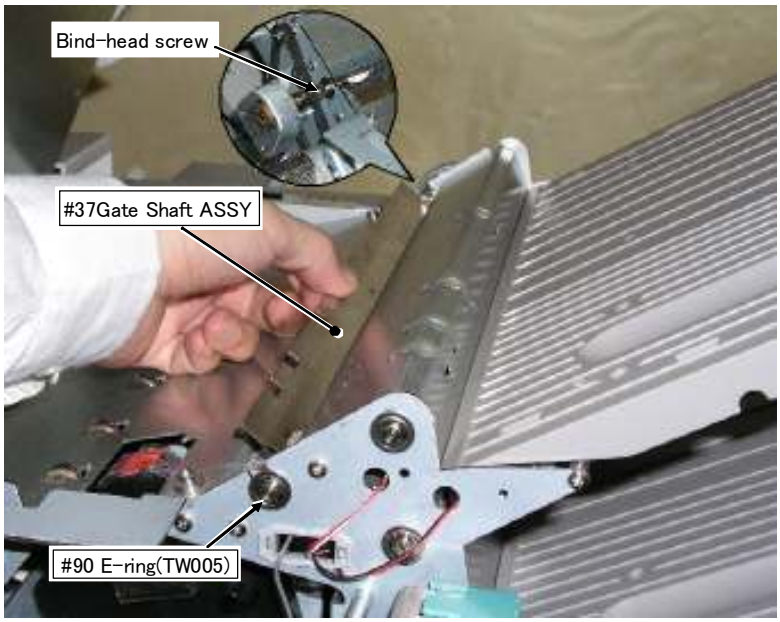
① Remove the Side Cover (L) (R). “For instructions, please refer to “8.1 Preparation”
② Remove the Gear (ELE Shaft) from the device. For instructions, please refer to “8.3.28 Replacing the Gear (ELE Shaft)”
③ Remove the Parallel Pin from the device and remove the E-Ring(TW005) Stopper on the left and right side.
④ Remove the Elevator ASSY from the device
⑤ Take the reverse step to attach the Elevator ASSY



8.3.27 Replacing the Gate Shaft ASSY

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

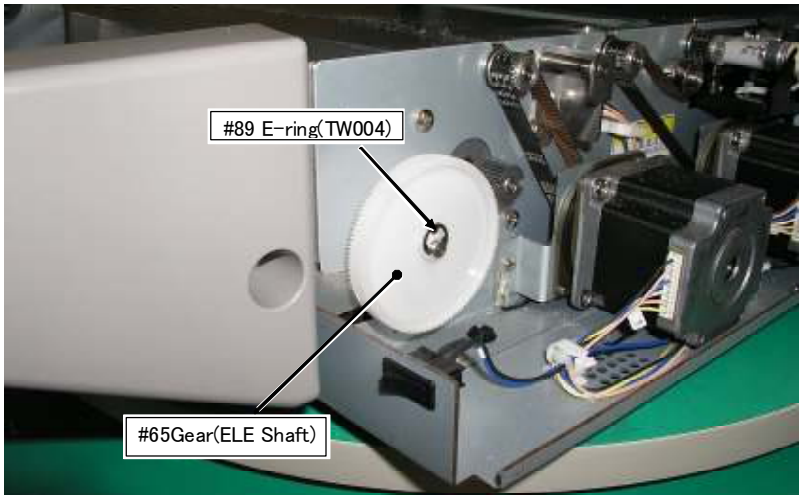
① Remove the Main Cover (L) (R). For instructions, please refer to “8.1 Preparation”
② Unscrew 1 bind-head screw on the Gate Shaft. For instructions, please refer to “8.3.22 Replacing the R SOL ASSY”
③ Remove the E-Ring(TW005) Stopper and remove the Gate Shaft ASSY
④ Take the reverse step to attach the Gate Shaft ASSY.



8.3.28 Replacing the Gear (ELE Shaft)

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

① Remove the Side Cover (L) (R). For instructions, please refer to “8.1 Preparation”
② Remove the E-Ring(TW004) Stopper and remove the Gear (ELE Shaft)
④ Take the reverse step to attach the Gate Shaft ASSY.

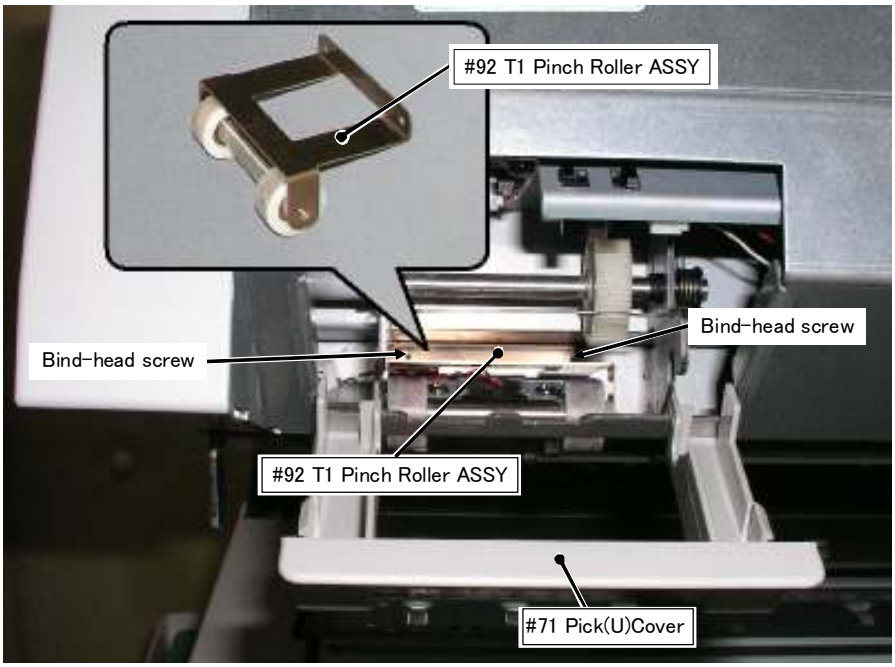


8.3.29 Missing Number

8.3.30 Replacing the T1 Pinch Roller

Tools Needed: Magnetic Philips Screwdriver (No.2)

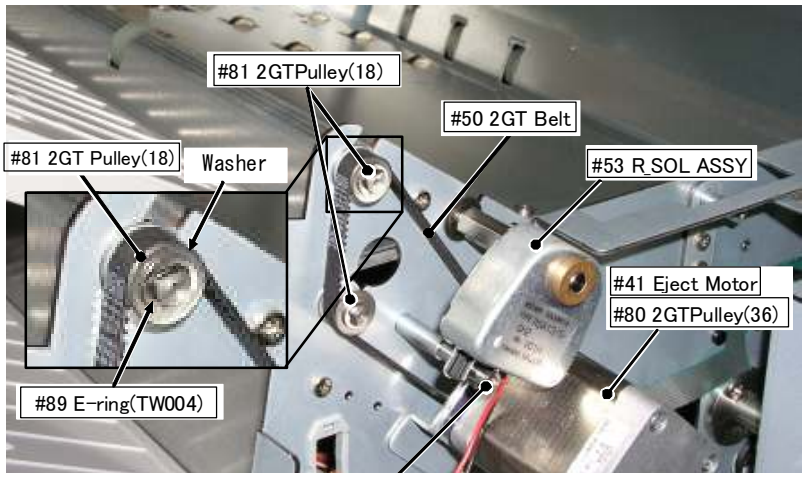
① Open the Pick (U) Cover and remove the Pick Unit ASSY from the device
② Unscrew 2 bind-head screws and remove the T1 Pinch Roller ASSY from the device
③ Take the reverse steps to attach the T1 Pinch Roller ASSY



8.3.31 Replacing the 2 GT Pulley

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

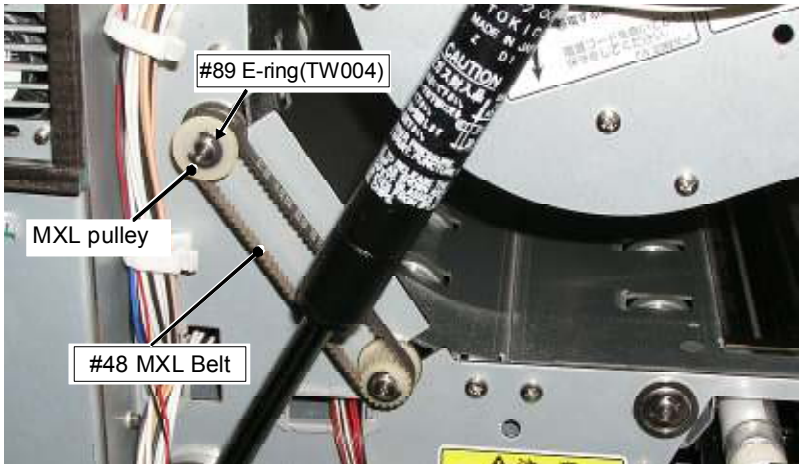
① Remove the Top Cover and the Main Cover (R). For instructions, please refer to “8.1 Preparation”
② Remove the E-Ring(TW004) Stopper and remove the 2GT Belt
③ Unscrew the screw from the R SOL and rotate the 2GT Pulley and remove it from the device. For instructions, please refer to “8.3.22 Replacing the R SOL
④ Take the reverse step to attach the 2GT Pulley



8.3.32 Replacing the MXL Belt

Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

① Remove the Main Cover (L) (R). For instructions, please refer to “8.1 Preparation”
② Remove the E-Ring(TW004) Stopper (TW004) and remove the MXL Belt
③ Take the reverse step to attach the 2GT Pulley

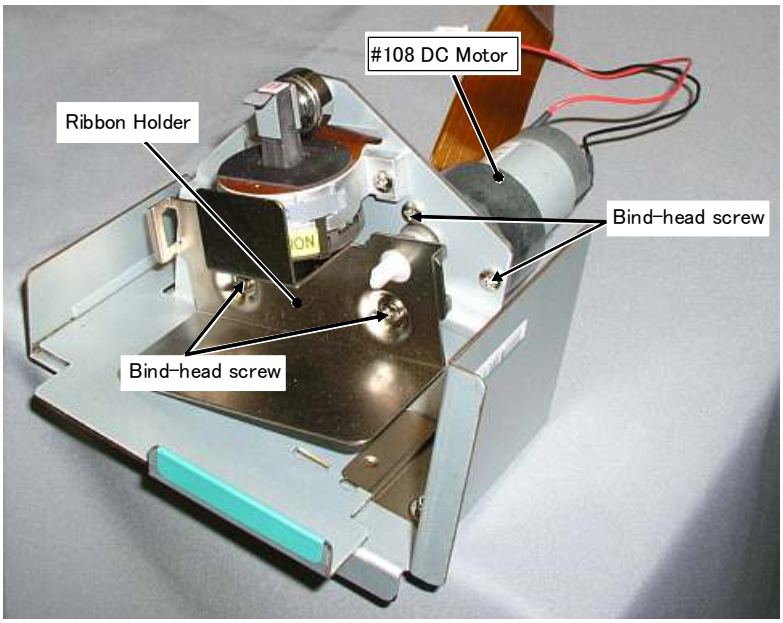


8.3.33 Replacing the DC Motor

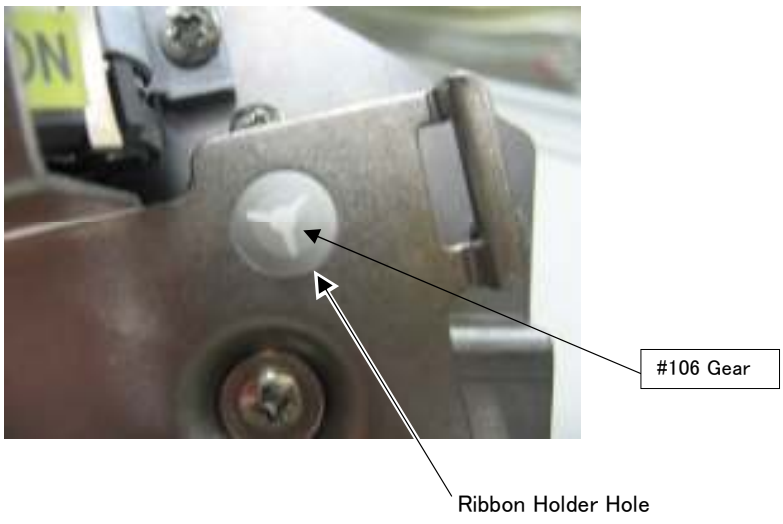
Tools Needed: Magnetic Philips Screwdriver (No.2)

① Read “8.3.9 Imprinting Head ASSY” ①～⑥and remove the Imprinting Head ASSY.
② Unscrew 2 bind-head screws from the Ribbon Holder
③ Unscrew 2 bind-head screws from the DC Motor and remove the DC Motor
④ Read “9.7 Adjusting the Ribbon Holder” and adjust the Ribbon Holder, and the gears. Take the reverse steps and attach the Ribbon Holder onto the device.

Check cable route “8.3.4” and make sure there is enough distance between the Motor Cable and the Ultra Sonic Sensor Cable. Noise between the 2 could cause errors in the Ultra Sonic Sensor
⑤ To adjust the Imprinting Gap, please refer to “ 9.5 Adjusting the Imprinting Gap”
⑥Run the print test and check the printing condition.



【 Note】 Make sure the Gear is positioned in the center of the Ribbon Holder.



8.3.34 Replacing the DC Fan

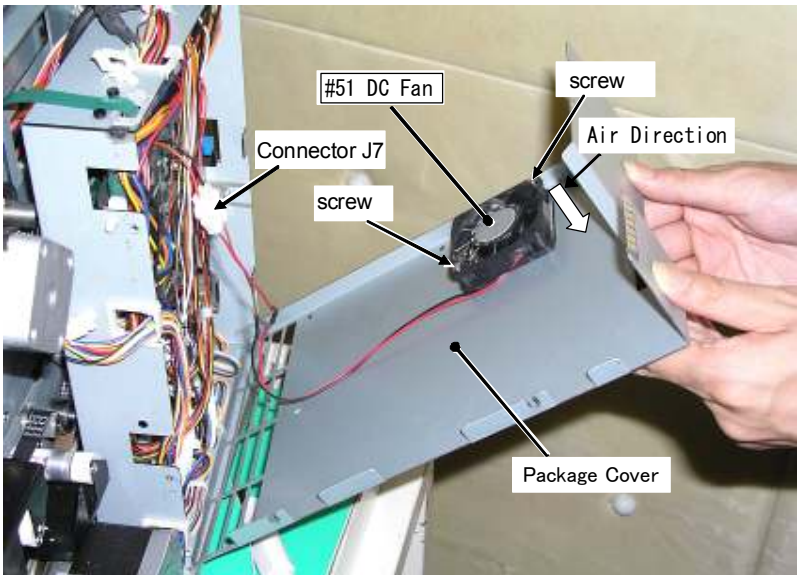
Tools Needed: Magnetic Philips Screwdriver (No.2)

■ Replacing the Package Cover DC Fan

① Read “8.3.2 Replacing Main P/K ASSY (CPS619 P/K)” ①～④and remove the Package Cover.

② Unscrew 2 screws on the DC Fan and Disconnect the connector J7. Remove the DC Fan from the device.

③ Take the reverse steps to attach the DC Fan

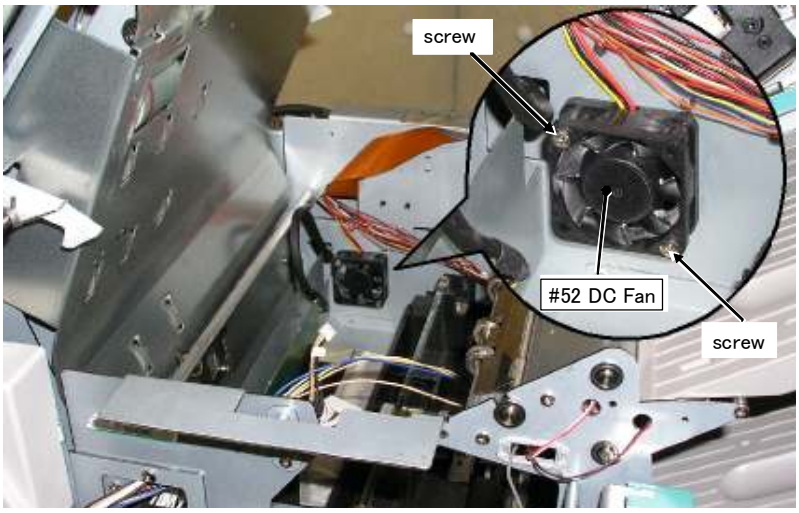


■ Replacing the Main Base (R) ASSY DC Fan

① Read “8.3.5 Replacing the Scanner ASSY” ①～⑨ and make the scanner in the same state as the picture below

② Unscrew 2 screws on the DC Fan, and disconnect the connector J7. Remove the DC Fan from the device. Take the reverse steps to attach the DC Fan.

Check cable route “8.3.4” and make sure there is enough distance between the Motor Cable and the Ultra Sonic Sensor Cable. Noise between the 2 could cause errors in the Ultra Sonic Sensor



8.3.35 Replacing the Anti-vibration rubber

Tools Needed: Magnetic Philips Screwdriver (No.2)

① Read “8.3.24 Replacing the Stepping Motor” and replace the Anti-vibration rubber

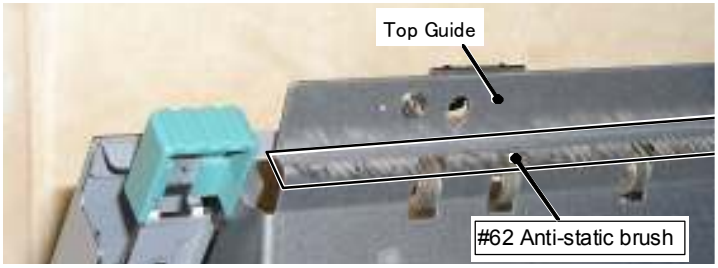
② Take the reverse step to attach the Anti-vibration rubber.

8.3.36 Anti-Static Brush

Tools Needed: Magnetic Philips Screwdriver (No.2)

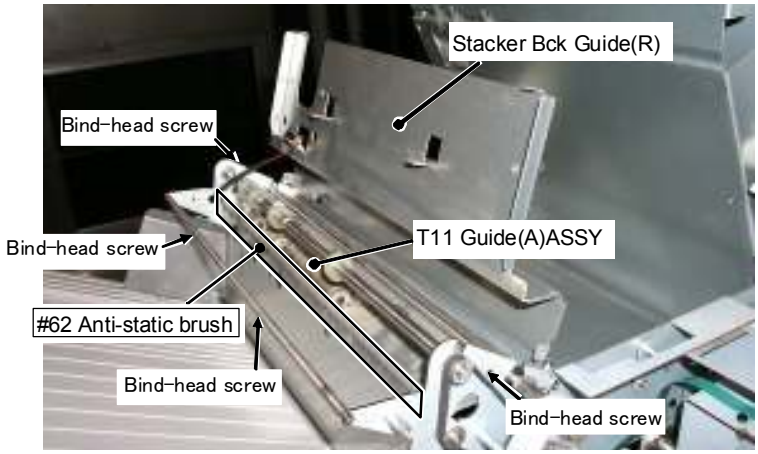
■ Replacing the Anti-Static Brush on the Top Guide

① Remove the Top Cover. For instructions, please refer to “8.1 Preparation”
② Remove and replace the Anti-Static Brush on the Top Guide
③ Take the reverse step to attach the Anti-Static Brush.



■ Replacing the Anti-Static Guide on the T11 Guide (A) ASSY

① Remove the Top Cover and the Main Cover (L) (R). For instructions, please refer to “8.1 Preparation”
② Remove the Stacker. For instructions, please refer to “8.3.8 Replacing the Stacker”
③ Unscrew 4 bind-head screws on the Stacker Back Guide (R)
④ Remove and replace the Anti-Static Guide from T11 Guide (A) ASSY
⑤ Take the reverse steps to attach the Anti-Static Guide



■ Replacing the Anti-Static Brush on the Lower Guide

① Remove the Hopper ASSY from the device. For instructions, please refer to “8.3.7 Replacing the Hopper ASSY”
② Unscrew 2 bind-head screws from the Front Guide, and remove the Front Guide.
③ Remove and replace the Anti-Static Brush on the Lower Guide.
④ Take the reverse steps to attach the Anti-Static Guide.

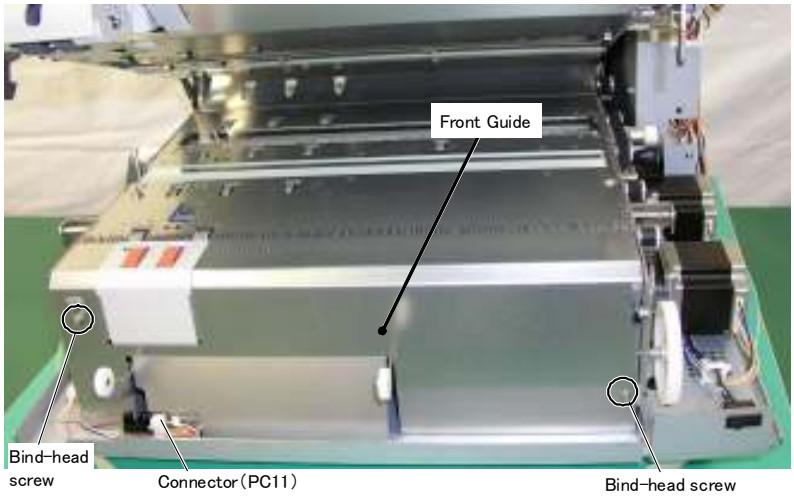


8.3.38 Replacing the Reverse Cover ASSY

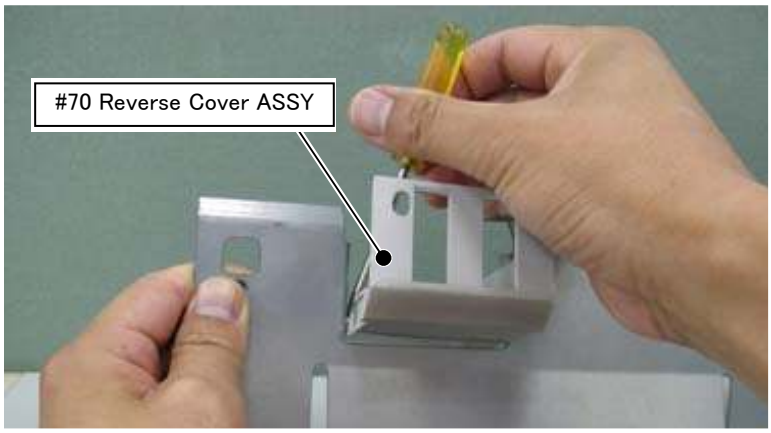
Tools Needed: Magnetic Philips Screwdriver (No.2), E-ring Removal

① Remove the Hopper ASSY from the device. For instructions, please refer to “8.3.7 Replacing the Hopper ASSY”

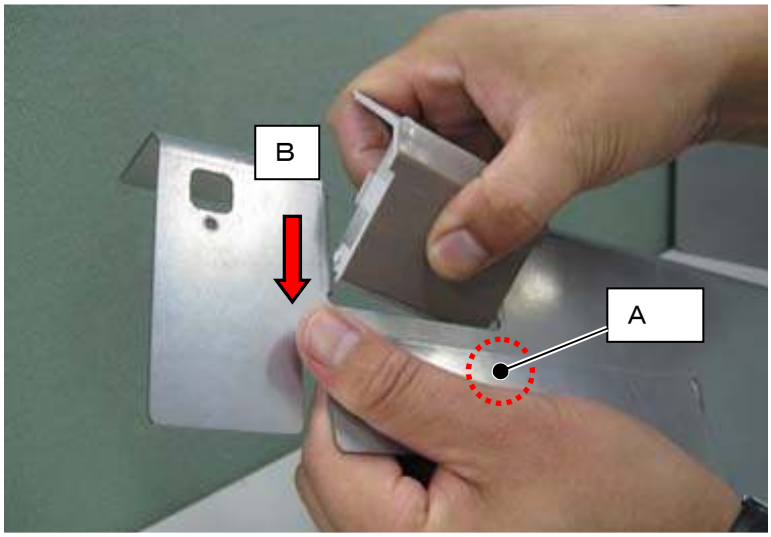
② Unscrew 2 bind-head screws from the Front Guide and remove the Front Guide.



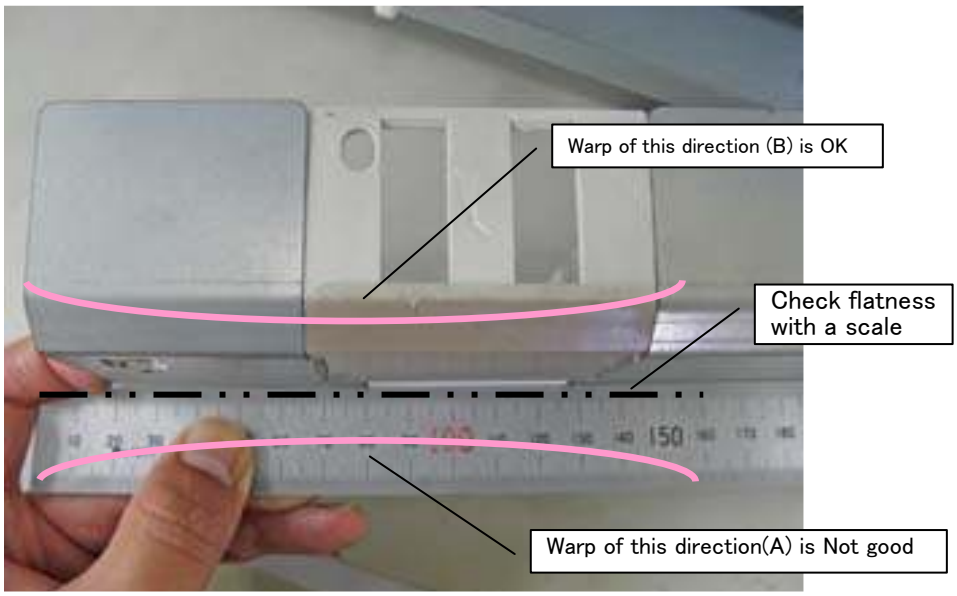
③ Use the －Driver and remove the Reverse Cover ASSY as shown below.



④ To attach the Reverse Cover ASSY, insert “part A” and slide “part B” in the direction of the arrow shown below.



⑤ After attaching the Reverse Cover ASSY, check the surface of the Front Guide ASSY. If it is leaning towards direction A, adjust it so it goes towards B (Shown below)

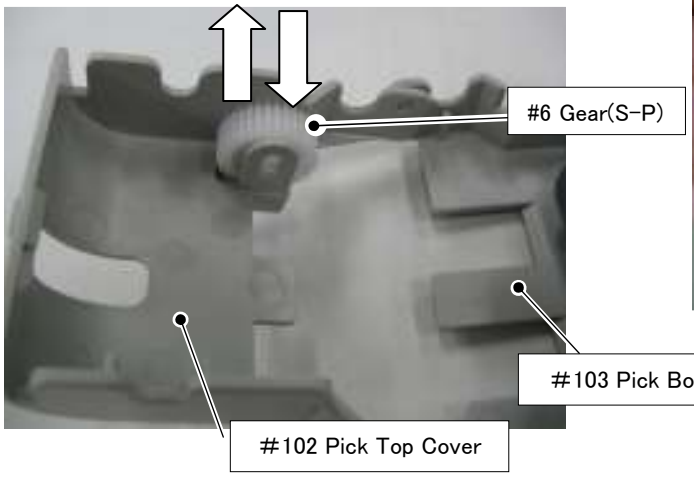


8.3.39 Replacing the Gear(S-P)

Tools Needed: grease

① Remove the Pick Unit ASSY, the Pick Shaft ASSY and the Separator Shaft ASSY. For instructions, please refer to "2.7.2 Replacing the Pick Roller and the Separator Roller"

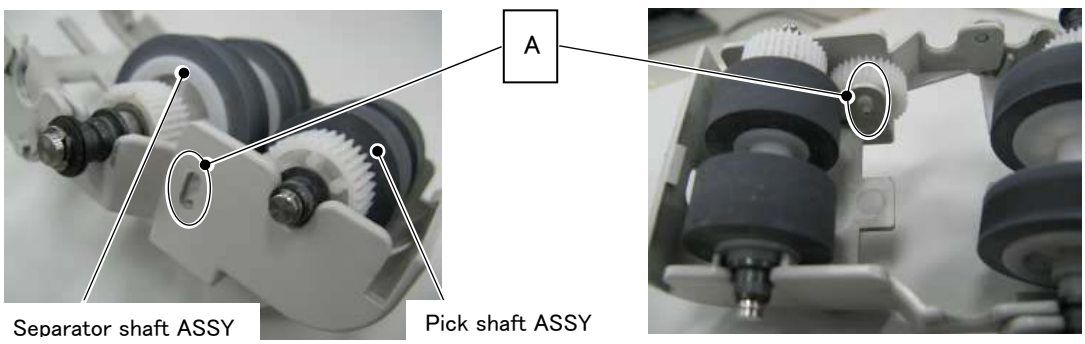
② Replace the Gear (S-P) on the Pick Top Cover taking the st





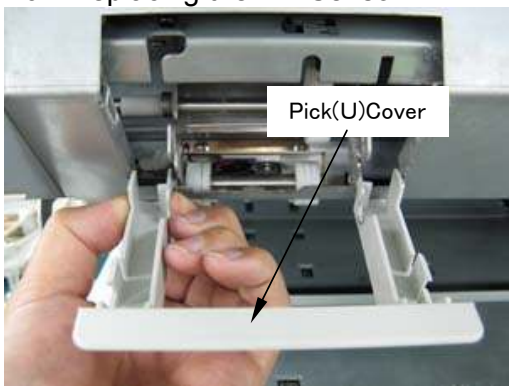
CAUTION:When attach the Gear (S-P), not open the Pick Top Cover unnecessarily

③ Put grease on the A part as shown below



④ Take the reverse step for assembly

8.3.40 Replacing the F/L Sensor

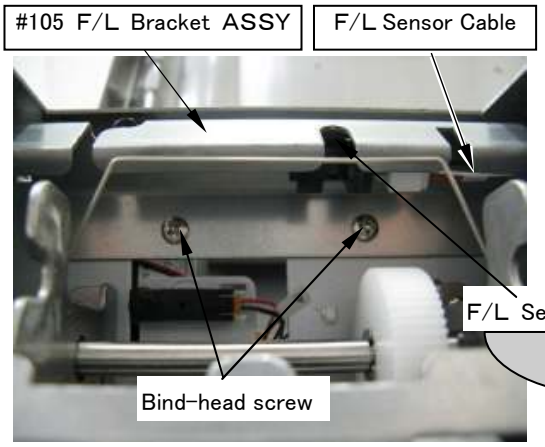


Caution: Make sure to attach the Sensor properly. It may be the cause of errors

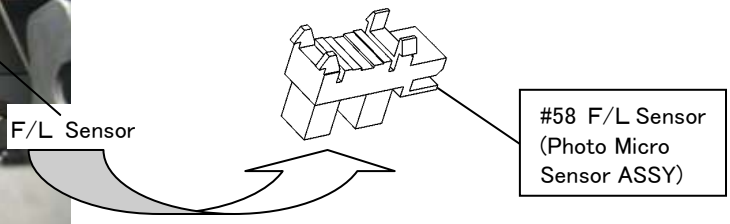
Tools Needed: Magnetic Philips Screwdriver (No.2)

① Remove the Pick Unit ASSY and the Pick (U) Cover.

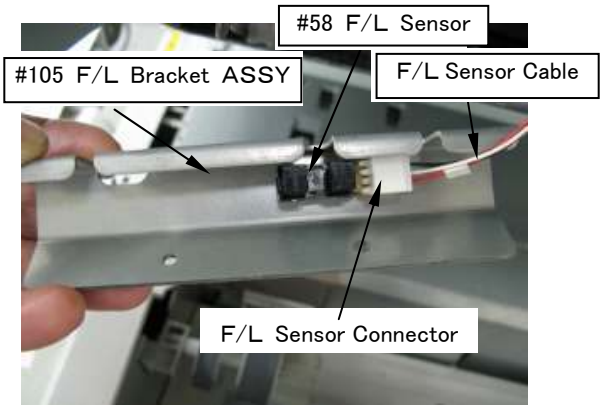
② Unscrew 2 bind-head screws on the F/L Bracket ASSY and remove the F/L Bracket



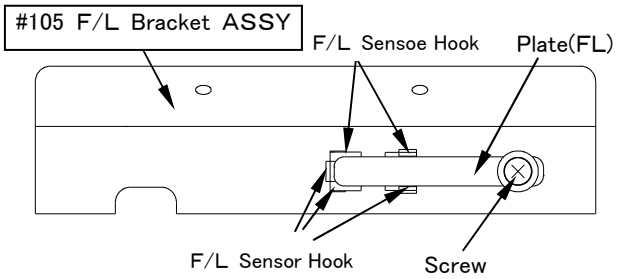
※ Do not pull hard to remove the F/L Bracket ASSY. The F/L Sensor Cable is routed onto the F/L Bracket ASSY.



③ Disconnect the connector from the F/L Sensor Cable.



④ Unscrew 1 screw from the countersunk (FL) and remove the F/L Sensor.

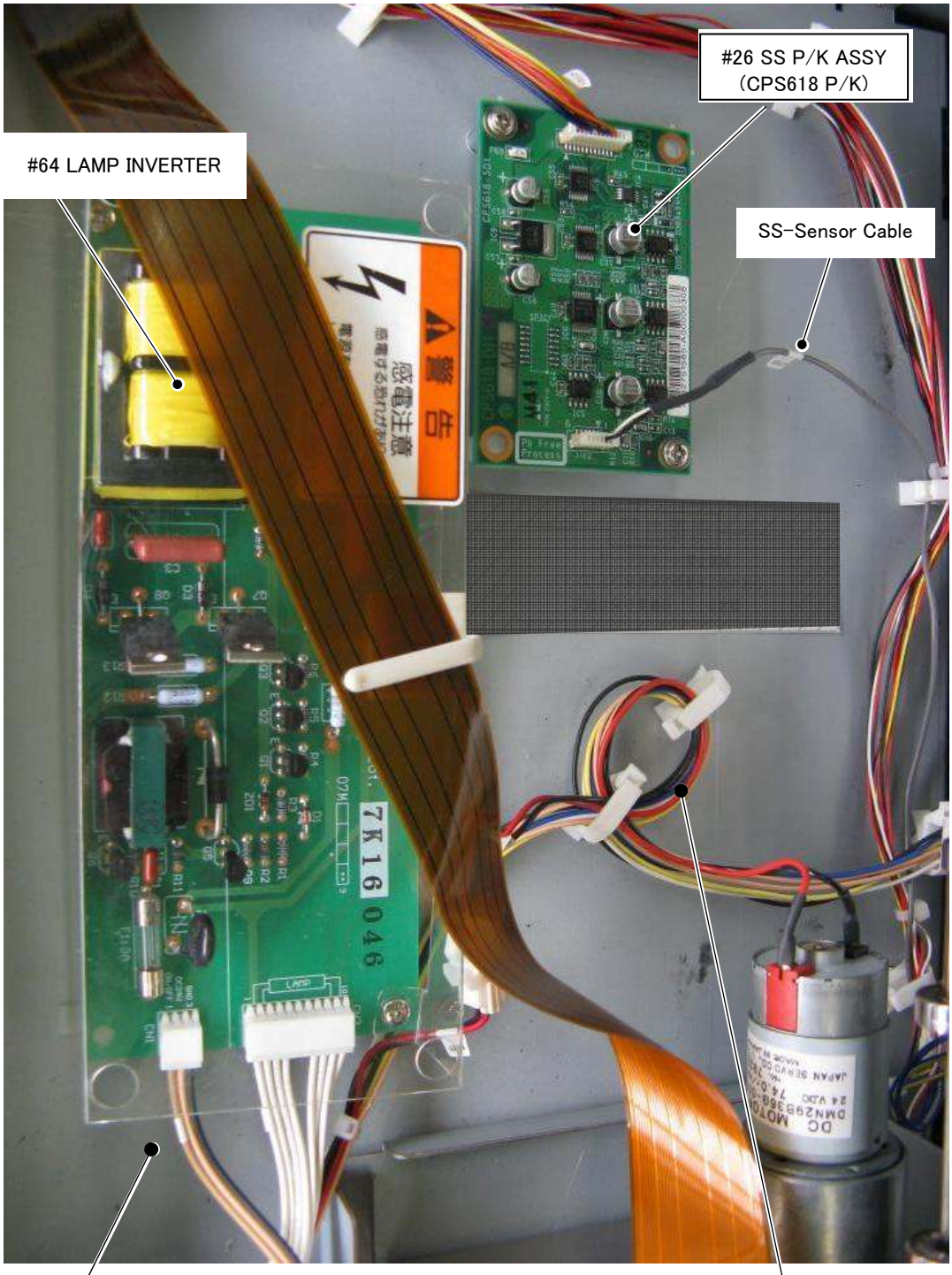


⑤ Take the reverse steps to attach the F/L Sensor

8.3.41 Mechanism (M) ASSY Cable Routing

Tools Needed: Magnetic Philips Screwdriver (No.2)

■ The Routing Plan when Replacing the Scanner ASSY



【CAUTION】

Check cable route "8.3.4" and make sure there is enough distance between the Motor Cable and the Ultra Sonic Sensor Cable. If not, the Ultra sonic Sensor might not work correctly because of noise.

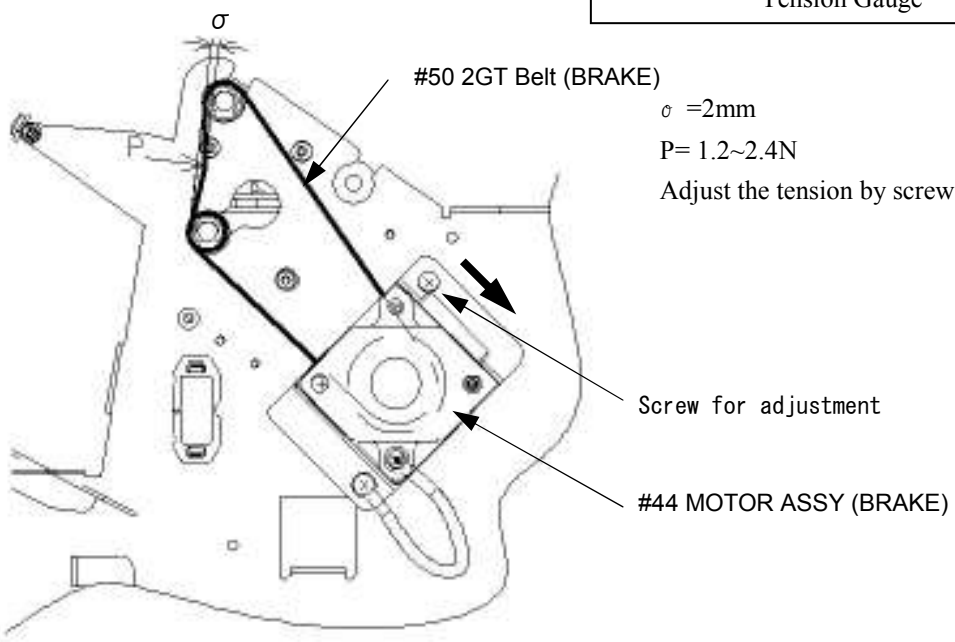
9 Adjusting

9.1 Checking the Tension of the Belt

Check the belt tension when replacing the Belt or the Motor.

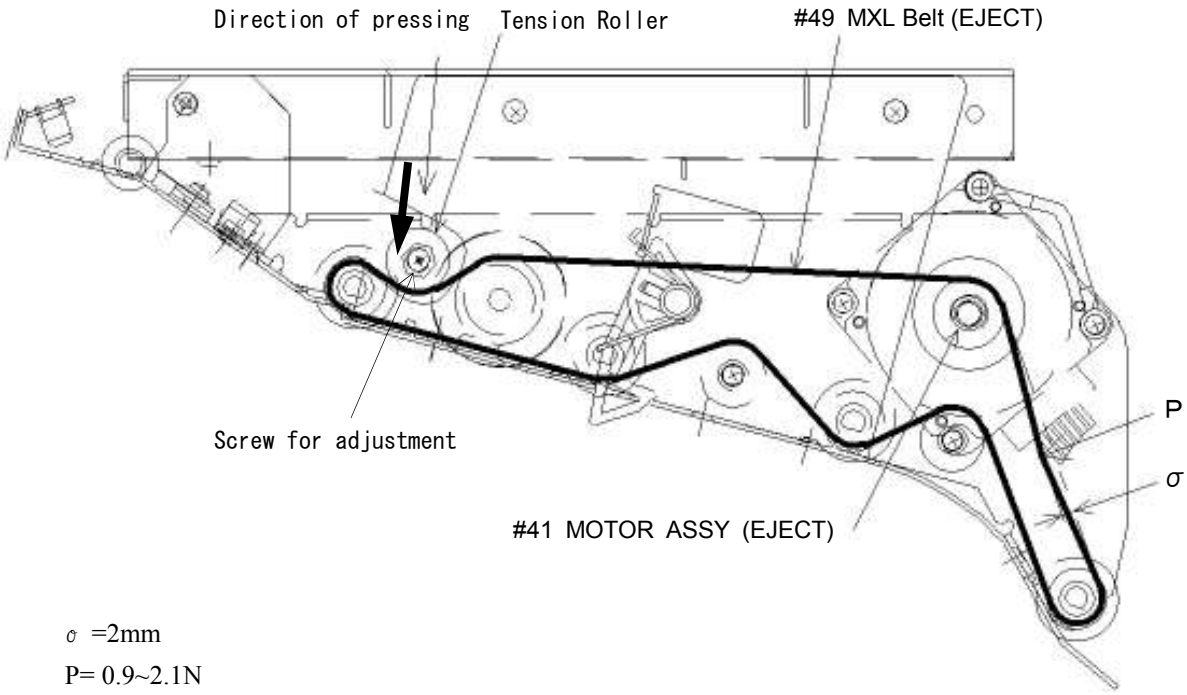
Tools Needed: Magnetic Philips Screwdriver (No.2), Tension Gauge

● Break Motor



● Eject Motor

Side view (Right)



σ =2mm

P= 0.9~2.1N

Adjust the tension by tension roller.

● T1 Motor

σ =2mm

P= 0.9~2.1N

Adjust the tension by screw.

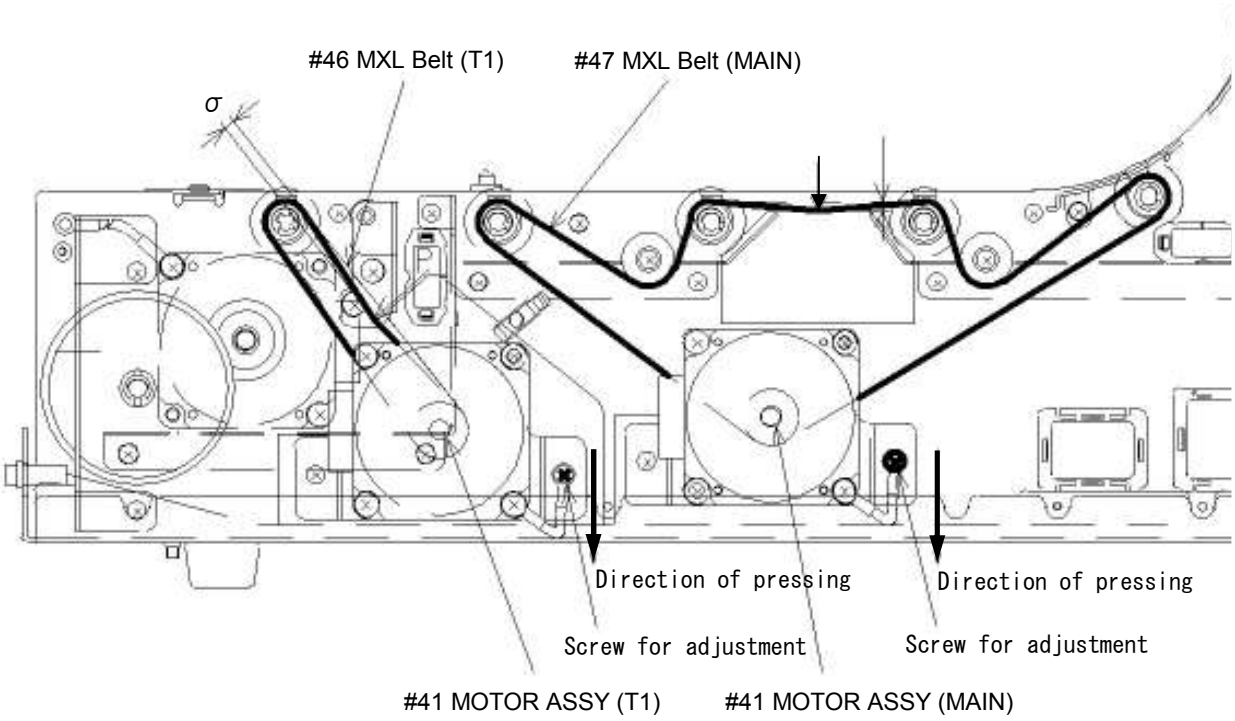
● Main Motor

σ =2mm

P= 0.9~2.1N

Adjust the tension by screw.

Side view (Right)



9.2 Checking the Upper Guide Gap

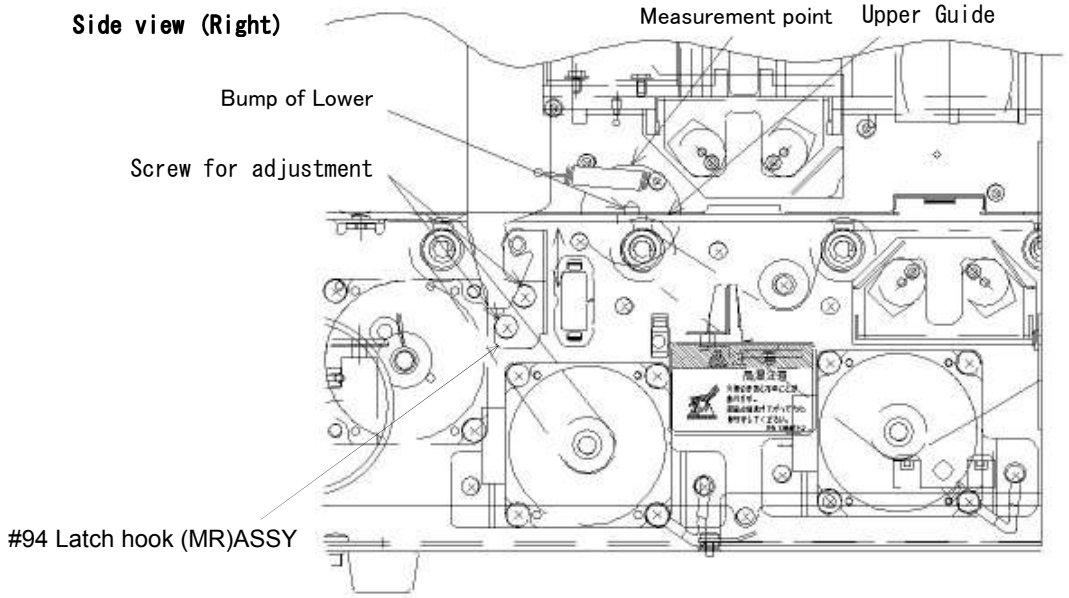
Check the Guide Gap when replacing the Latch parts.

Tools Needed: Magnetic Philips Screwdriver (No.2), Thickness gauge

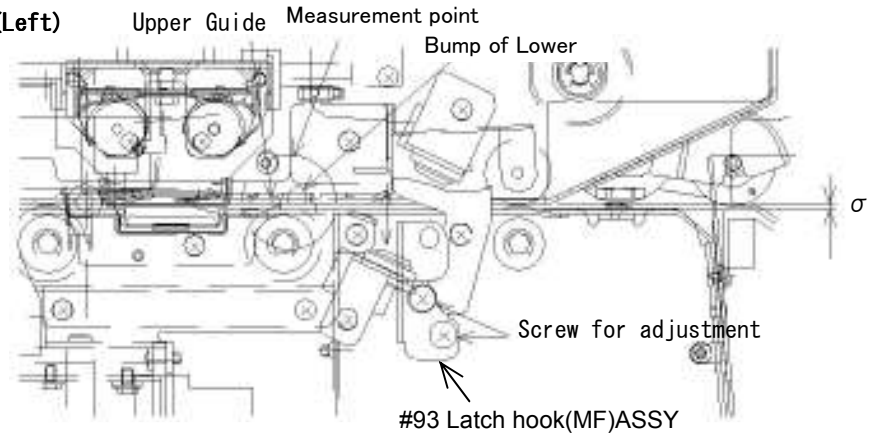
- Upper Guide Gap

Make sure the Upper Guide is touching the Lower Guide bump
If it is not touching the bump adjust the Latch Hook (MF) ASSY

Side view (Right)



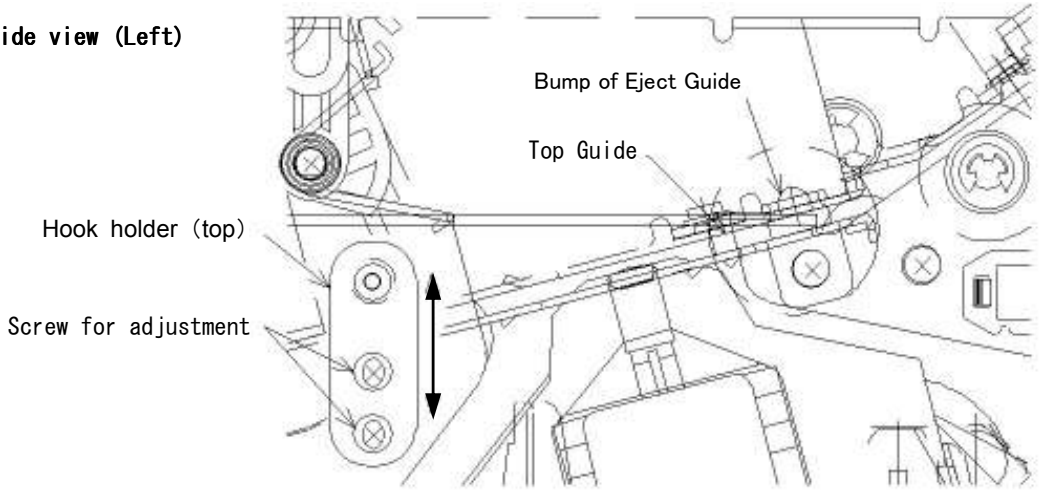
Side view (Left)



- Top Guide Gap

Make sure the Top Guide is touching the Eject Guide bump
If it is not touching the bump adjust the Hook Holder (Top). Take the same step for the opposite side.

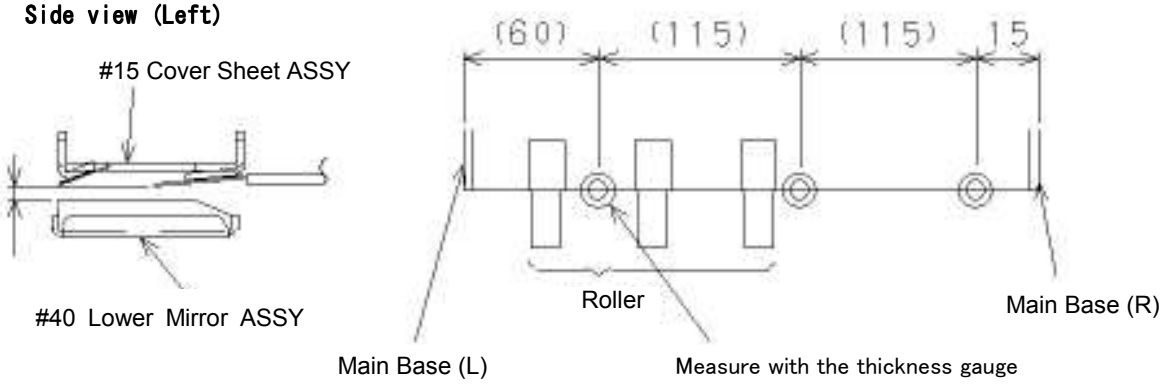
Side view (Left)



● Head Gap

◎Part σ =0.4~0.9mm

Side view (Left)



9.3 Checking the Interlock Switch (INL ASSY)

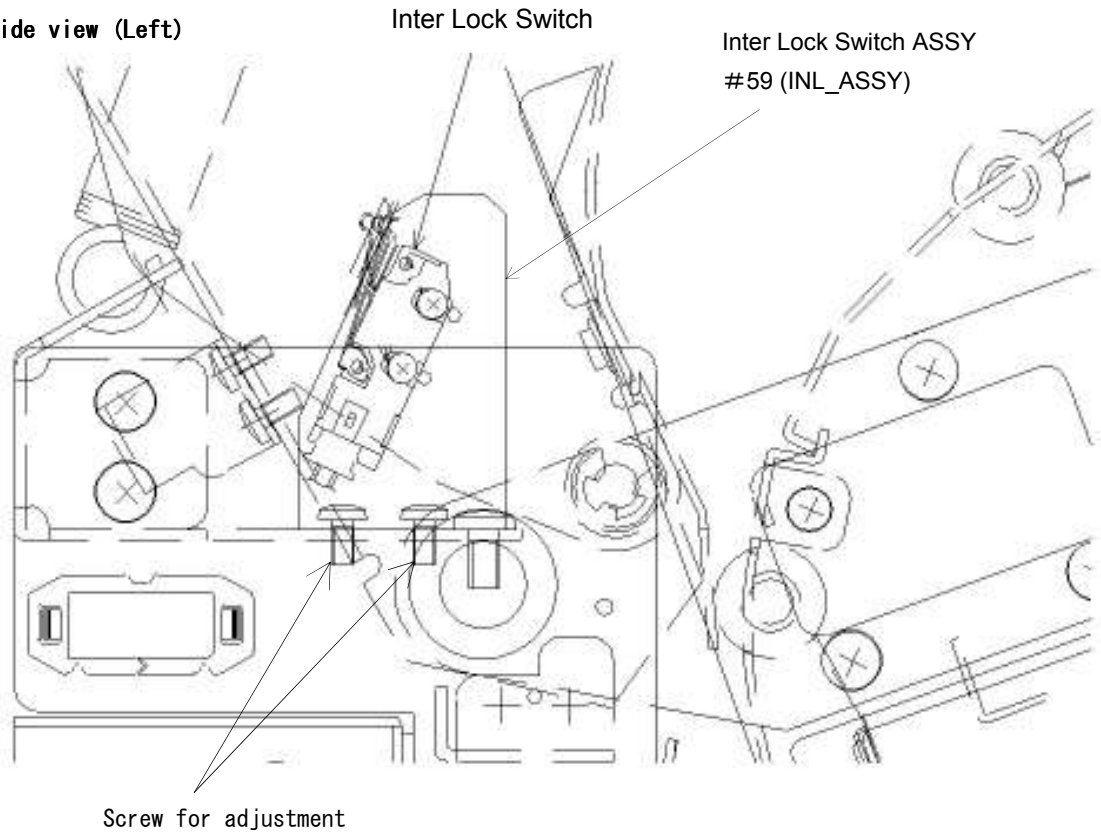
Check the interlock switch when replacing it is replaced.

- When the latch is closed, the interlock will be disabled
- After the lock is disabled, check the interlock
- Attach the Interlock Switch

Tools Needed: Magnetic Philips Screwdriver (No.2)

●Interlock Switch

Side view (Left)



9. 4 Checking the pressure of the Reverse Roller

Tools Needed: Magnetic Philips Screwdriver (No.2), Metric Ruler, Tension Gauge

9.4.1 Checking the pressure of the Reverse Roller

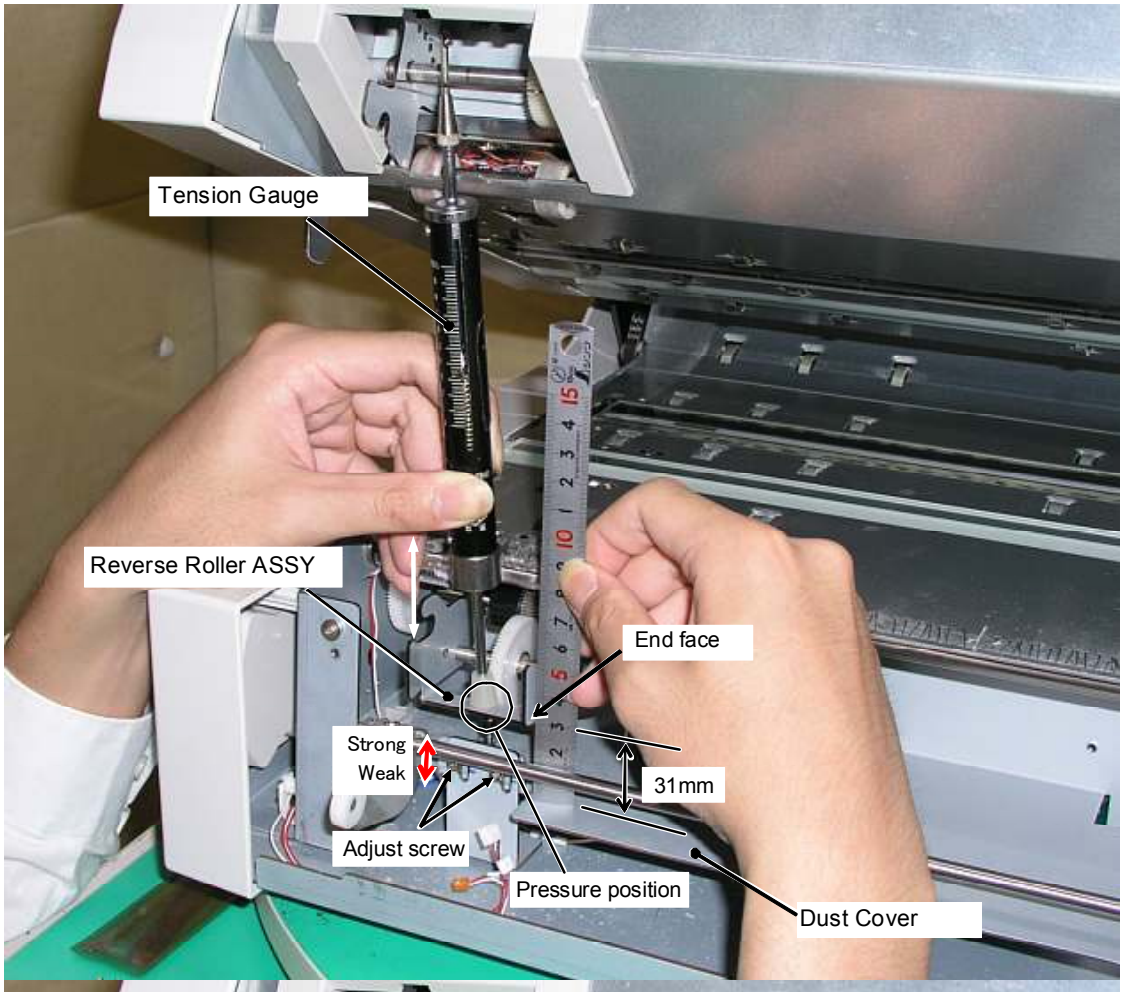
Check the pressure of the Reverse Roller when replacing the Reverse ASSY and the Soft Absorber

① Remove the Pick Unit ASSY and check the pressure of the Reverse Roller as shown below.

② The distance from the Dust Cover and the Reverse Arm ASSY should be 31mm. This position will be defined as Pressure P

③ The Measured Load will be Pressure P = 3.5∓ 0.25N(350∓ 25g)

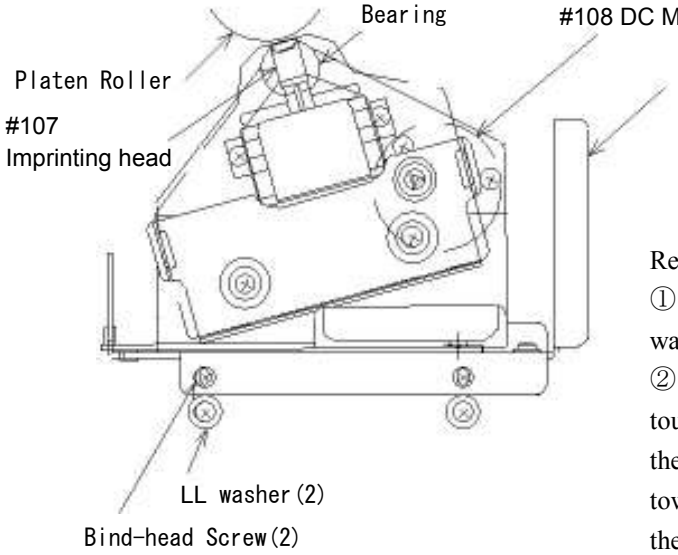
f the result is outside the appropriate measurement, adjust the position of the knob. A 2mm shift in the knob will change 0.5N

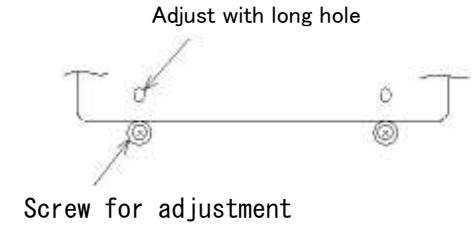


9.5 Adjusting the Imprinting Gap

Check the Imprinting Gap when replacing the Imprinting Head

Tools Needed: Magnetic Philips Screwdriver (No.2), Thickness gauge



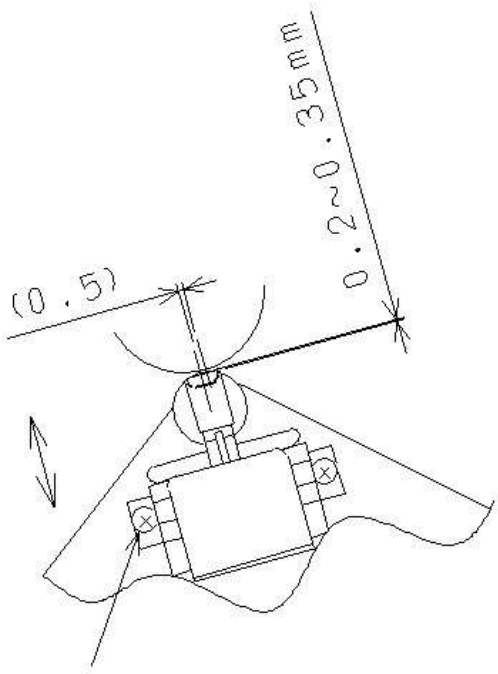


Replacing the Imprinting Head ASSY

① Put the Imprinting Head ASSY on the LL washer faced heads and tighten 2 bind-head screws.

② Make sure the Roller and the Bearing is touching each other. Check whether the center of the Imprinting Head ASSY should be leaning towards the left, and loosen 2 bind-head screws. If the two are not touching each other, use the long hole on the Imprinting Head ASSY to adjust it. After, attach the LL washer head on the Imprinting Head ASSY.

③ Use the thickness gauge and measure the gap between the Imprinting Head and the Roller. It should be 0.2~0.35mm. If the gap is outside that boundary, adjust the knob on the Imprinting Head;



● Replacing the Imprinting Head

① Check whether the center of the Imprinting Head ASSY should be leaning towards the left, and loosen 2 bind-head screws.

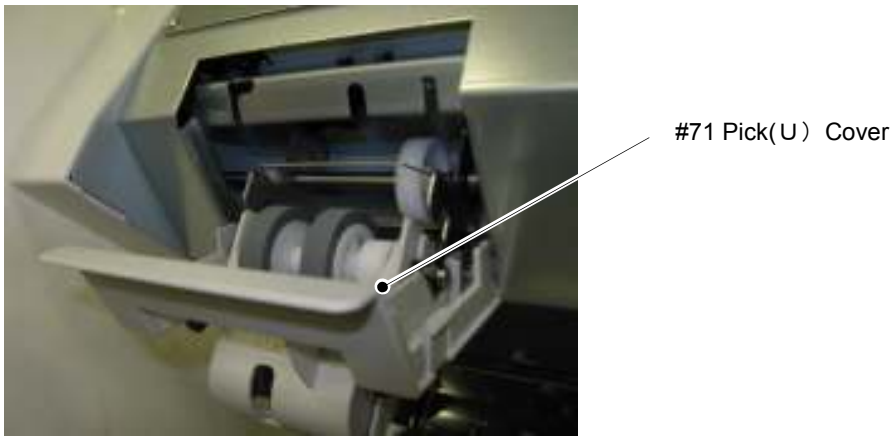
② Use the thickness gauge and measure the gap between the Imprinting Head and the Roller. It should be 0.2~0.35mm. If the gap is out of specification, adjust the Bind-head screw on the Imprinting Head;

9.6 Checking the pressure of the Reverse Roller

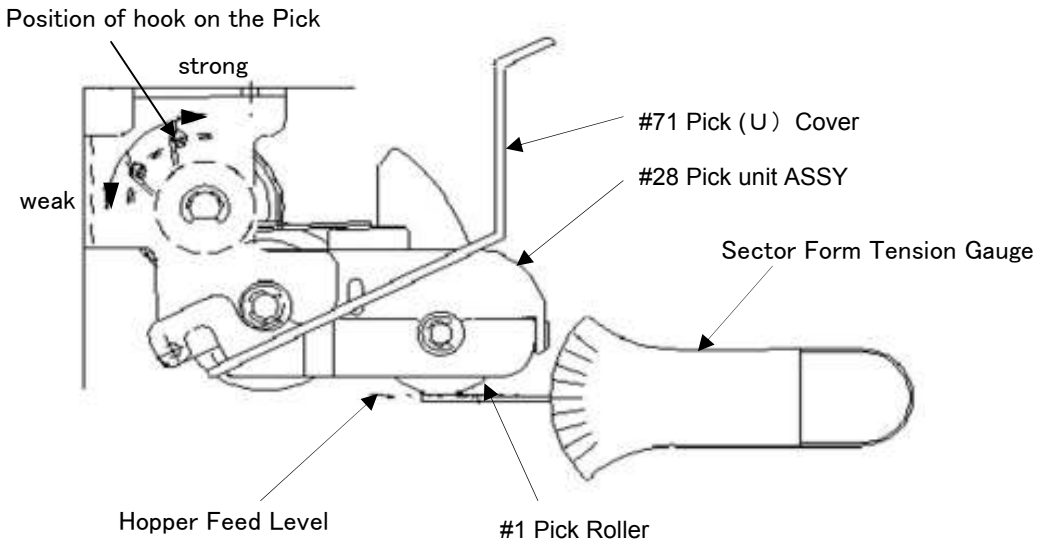
Take the following steps to check the pressure of the Reverse Roller.

Tools Needed: Tension Gauge

Open the Pick (U) cover and check the position of the hook on the Pick Spring.
The position is shown in the picture below.



【Side View】



【Steps】

① Use the tension gauge to lift up the center of the Pick Roller and measure the load when the Roller is parallel.
② The measured load shall be the following value;
Standard Specification = 1.2 ± 0.2N

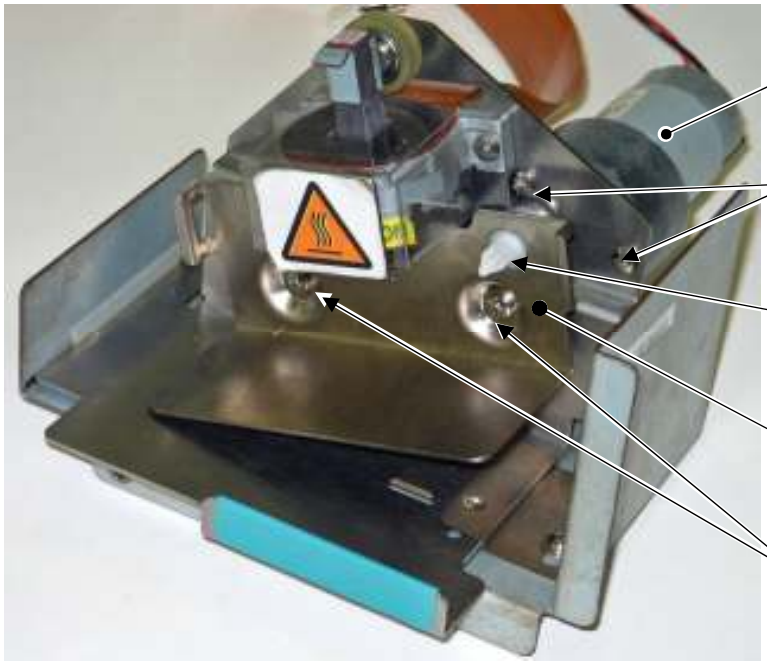
※ By adjusting the position of the hook on the Pick Spring, you can change the pressure on the Pick Roller. Shifting one hole will change 0.4 N.

【Point】 If misfeed errors keep occurring, adjust the hook position so that stronger pressure is applied.

9.7 Adjusting the Ribbon Holder

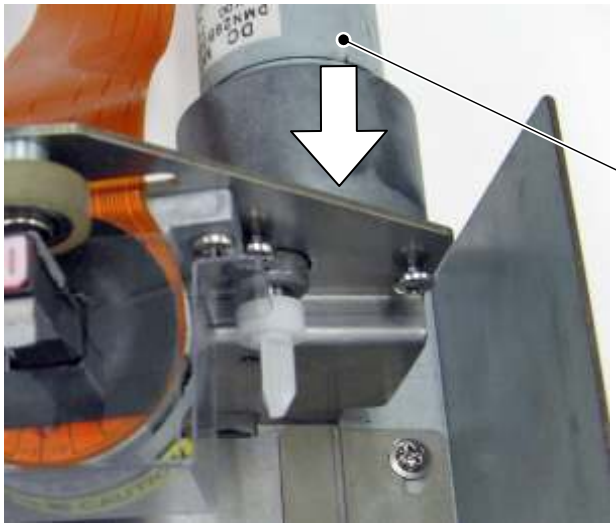
Take the following steps to construct the Ribbon Holder.

Tools Needed: Magnetic Philips Screwdriver (No.2)

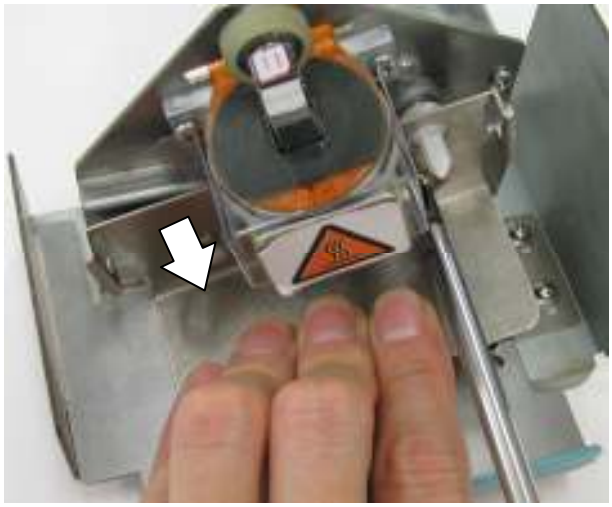




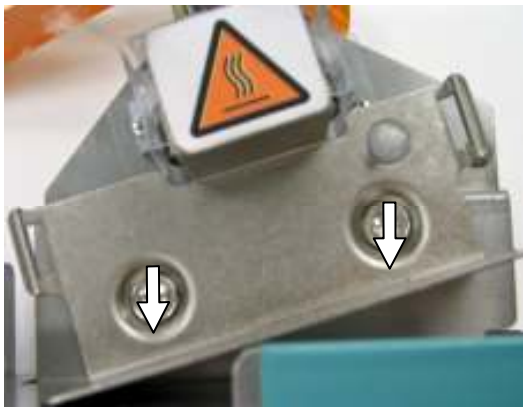
① Loosen 2 bind-head screws on the Ribbon Holder and remove the Ribbon Holder



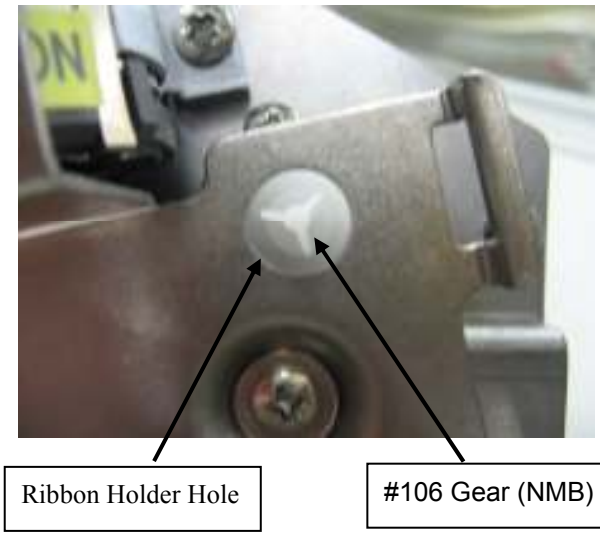
② Loosen 2 bind-head screws on the DC Motor and attach the DC Motor by applying pressure in the direction of the arrow.



③ Push the Ribbon Holder in the direction of the arrow and unscrew 2 bind-head screws



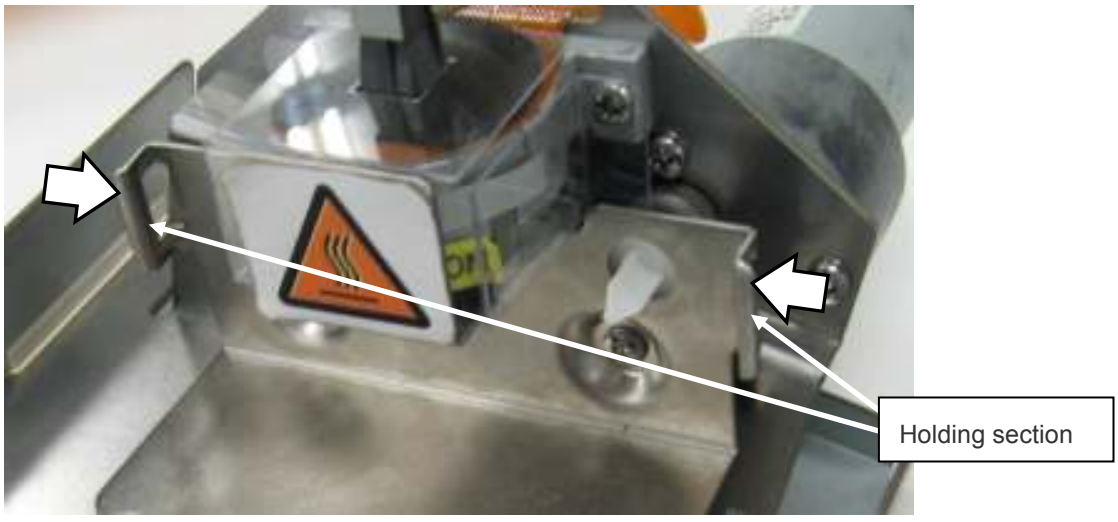
④ 【Important】Make sure the Gear is positioned in the middle of the Ribbon Holder.



⑤ Make sure the Ribbon Cassette is firmly inserted into the Ribbon Holder



※⑤If the Ribbon Cassette is loose, bend the hinge slightly inwards as shown in the picture below.



Appendix A

A-1 Maintenance Tools for HT4139

No.	Tool Name	Specification	Purpose
1	Magnetic Philips Screwdriver	No.2	Attach / Remove parts
2	E-ring Removal	E-ring(Diameter): 5.0~11.0mm	Remove Drive E-ring
3	Long-nose Pliers		Replace Drive Roller
4	Box-wrench	5.5mm	Replace Drive P/K
5	Tension Gauge	500g (5N)	Adjust belt tension Minimum scale value: 10g (0.1N) Range of use: 100 - 400g (1N - 4N)
6	Metric Ruler	150mm	Adjust reverse roller Minimum scale value: 1mm Range of use: 0 - 40mm
7	Thickness gauge	0.20mm 0.30 0.35	Platen gap
		0.40mm 0.45 0.50 0.60 0.70 0.80 0.90 1.00	Adjust head gap
8	Absolute Ethanol	NA	Cleaning
9	Gauze / Cleaning cloth	NA	Cleaning
10	Digital Voltage Meter	AC100 - 300V	Confirm power supply voltage Confirm temp. fuse of lamp
11	Test sheet	040-7-4 (297 x 210mm)	for Diagnosis
12	PC for Maintenance	Windows XP	for Maintenance Program
13	Grease		Gear(S-P)、Latch hook(MF)