# RIGOH

# Technical Bulletin

### **PAGE:1/2**

Model: EMP156		Date: 22-Nov-05		No.: RG155001	
Subject: Firmware Release History (Controller)			Prepared by: N. Sakamoto		
From: 2nd Tech. Support Sec. Service Support Dept					
Classification:	Troubleshooting	Part information Action require		n required	
	Mechanical	Electrical		Servic	ce manual revision
	Paper path	Transm	it/rec	eive 🗌 Retro	fit information
	🔀 Other ( )				

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
Em114	G1552684	December 2005 Production

### Changes:

- German and French languages were added. Japanese language was deleted.
  - Paper Color function is supported with PostScript.
    - > Considers the Media Color when processing the Media Matching.
    - Printer Paper Source Paper Color" menu was added to the OCP.
    - "Paper Color" menu was added to "Manage System Tray" and "Manage System Virtual Printer - each VPT - PostScript" of the Web Utility.
    - String of the Color was added to "prtInputMediaColor" of the MIB.
    - "ocpCustomMediaColor" was added in the MIB.
- Tracing Paper is supported as a Paper Type.
- The "Accounting Slip Sheet" function was added.
  - "Accounting Slip Sheet: Enable/Disable" option was added to the "Manage System Virtual Printer - each VPT - General" menu of the Web Utility (factory default: Disabled).
- The Image Shift function with PJL commands is supported.
- TBCP mode is supported with PostScript.
- Letter and A4 can be selected with PCL and PJL, regardless of sheet orientation.
  - "Auto Feed Orientation" option was added to "Manage System General Options" of the Web Utility.
- The LPD Banner Page function was added.
  - "LPD Banner Page: Enable/Disable" option was added to: "Manage System Virtual Printer" (factory default: Disabled).
- Improved the switching time between the Standard Input Tray and Additional HCF.
  - > The "Printer Paper Source HCF Tray Control" menu was added to the OCP.
  - > The "HCF Tray Control" Menu was added to "System Tray" in the Web Utility.
- A timeout (time limit) was added for LPR, RawTCP and IPP.

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Model: EMP156	Date: 22-Nov-05
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No.: RG155001

• The configuration Report function was added.

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- The "configuration" option was added to the "Report" menu of the OCP for user adjustable parameters.
- The "Config Print" option was added to the "Service Configuration" menu of the OCP for various engine parameters.
- Added new Default Virtual Printer "lp" to port 9100.
- Changed Default Virtual Printer "TEXT" to "text" for port 3100.
- Changed engine parts name "Cyclone Filter" to "Fine Filter" on the OCP / Web / MIB.
- Fixed various PCL/PostScript issues.
- Improved compatibility with HP printer functionality.
- Corrected the page image position for PostScript.
- Corrected the EC#04 error when using the HCF2 Upper Tray.
- Corrected the "2 on 4 off" test print pattern.
- Added the Engine FPGA version to the Status Page.
- Corrected a display error for the number of OPC sheets used  $(10 \rightarrow 11)$ .
- Corrected the PJL USTATUS command response.

### PAGE: 1/1

Model: EMP156		Date: 20-Dec-05		5	No.: RG155002	
Subject: Firmware Release History (Engine)			Prepared by: N. Sakamoto			
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	Part info Electric Transm	ormat al it/rec	tion [ [ eive [ )	Action Servic Retrof	n required se manual revision fit information

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
E	G1552685	August 2005 Production

### **IMPORTANT:**

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To apply the corrections and new features of the new firmware, make sure to update the following firmware **together as a set:** 

Program No. G1552685 (Engine) Program No. G1552684 (Controller)

### Symptoms Corrected:

- The motor control was changed to reduce HCF feed jams.
- E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)

### **Other Changes:**

- Added Prior Pick Mode.
- Added "tracing paper" as a paper weight.
- The amount of stack offset between jobs can now be adjusted for long paper.
- Added an Air Pressure Adjustment.
- Added an ST Stopper Adjustment (to the driver test).

### **PAGE: 1/1**

Model: DDP		Date: 16-Dec-05		-05	No.: RG150008	
Subject: Firmware Release History (Log analyzer)			Prepared by: N. Sakamoto		Sakamoto	
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	Part informa		tion	Action	n required
	Mechanical	echanical 🛛 🗌 Electrical			Servic	ce manual revision
	Paper path	🗌 Transm	it/rec	eive	Retro	fit information
	Product Safety	Other (		)		

This RTB contains the software release history for the Log analyzer.

Note: This RTB is for the DDP70, DDP92, DDP184 and EMP156.

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Version	Program No.	Effective Date
6	G1501900	1st mass production

# Technical Bulletin

#### PAGE: 1/1

Model: EMP156			Dat	:e:28-Mar-(	06	No.: RG155003
Subject: Firmware Release History (Engine)				Prepared by: N. Sakamoto		
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	Part informa		tion	Action	n required
	Mechanical	Electric	al		Servic	e manual revision
	Paper path	Transm	it/rec	eive	Retrof	fit information
	Product Safety	Other (		)		

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
E	G1552685	August 2005 Production
G	G1552685B	January 2006 Production

### **Symptoms Corrected**

- The image density decreases after 400KC developments are made of an original with high image coverage.
- EC#09 (print time-out error) occurs when the machine switches from the built-in hopper to the optional hopper (AHP) during a print job.

### Other Changes

- The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180).
- The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).

#### **Engine Microcode Revisions:**

Microcode	Revision
Print Engine - Master	06
Print Engine - Slave	06
Print Engine - FPGA	07
AHP(HCF)	07
Stacker 1 (Container Stacker 1)	06
Stacker 2 (Container Stacker 2)	06

## Technical Bulletin

Reissued:11-May-06

Date: 26-Apr-06

No.: RG155004a

### **RTB Correction**

Model: EMP156

The items in bold italics have been corrected or add	ed.
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Subject: Engine Maintenance Manual Revision		Prepared by: Y.Minakawa		
From: 2nd Tech Support Sec. Service Support Dept.				
Classification:	Troubleshooting	Part informat	ion	Action required
	Mechanical	Electrical		Service manual revision
	Paper path	Transmit/rec	eive	Retrofit information
	Product Safety	🗌 Other (	)	

### 1. **Replace** the following illustration.

SECTION 3.13 Printer Circuit Diagram, Figure 3-51. Printer Circuit Diagram



### Technical Bulletin

Reissued:11-May-06

Model: EMP156	Date: 26-Apr-06	No.: RG155004a
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2. **Replace/Add** the following steps and illustration.

Pg.7-394

SECTION 7.6.1.23. Removal of the EOF Sensor (Upper Hopper:for Paper empty, Paper size)

- 5. Unscrew + screw B.
- 6. Remove the EOF Sensor Assembly (For paper empty).



Model: EMP156

Date: 26-Apr-06

No.: RG155004a

### 3. **Replace** the following procedures.

# 7.4.1.15. Removal of the Photo Interrupter (for height sense of paper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### [Disassembling Procedures]

- 1. Pull out the Small Hopper Assembly.
- 2. Unscrew the four  $\oplus$  screws **A** to remove the PG Back Cover (L).
- 3. Remove the Extension Spring.
- 4. Disconnect the connectors S531.
- 5. Remove the two ⊕ screws **B** to remove the Sensor Base Staking Assembly.
- 6. Remove the Retaining Ring to remove the Height Sense Hook Assembly and two Compression Springs.
- 7. Remove the one  $\oplus$  screw **C** to remove the Shutter Film Guide.
- Remove the one ⊕ screw D to remove the Spacer(HS) and the Slider Guide. (NOT APPLIED UNIT REV, F)
- 9. Remove the Photo Interrupter from the Base Staking Assembly.



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Model: EMP156	Date: 26-Apr-06	No.: RG155004a
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#### [Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

#### NOTE: (APPLIED UNIT REV, F)

- (1). When assembling the Photo sensor, bump it to the edge of Sensor Base Staking Assembly.
- (2). Adjust the gap between the Shutter Film Guide and the Glass surface.





- 2. Output adjustment of Photo Interrupter after assembly.
  - (1). Set a sheet of paper in the Hopper. (Paper thickness is 20lb or equivalent)
  - (2). Looking through the long hole which is rear of the Size Guide paper supply move the paper to the position where you can see the two adjusting ⊕ screws A and the one ⊕ screw B, then close the Hopper.
  - (3). It is confirmed that the table rose, and displays the output voltage value of the sensor for the Paper Height detection by the diagnosis mode.

Disassembling, Assembling & Adjustment 7-309

Reissued:11-May-06

Model: EMP156

Date: 26-Apr-06 No.:

No.: RG155004a

- (4). Loosen the two ⊕ screws A from the front side.
- (5). Turn the one ⊕ screw B and move the Paper Height Sensor up and down so that the output voltage value may enter the range of 01D4 to 0213.
- (6). Tighten the two ⊕ screws A.
- (7). After adjustment, move the table down and open and close the Hopper. Then check the output voltage value again. Acceptable output voltage value is the range of 0177 to 026F.
- (8). The sensor is positioned again when not entering the above-mentioned value.



Figure 7-368. Assembling of the Photo Interrupter (for height sense of paper)

<sup>7-310</sup> EMP156 Maintenance Manual

Model: EMP156

RICOH

Date: 26-Apr-06 No

No.: RG155004a

# 7.4.2.15. Removal of the Photo Interrupter (for height sense of paper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### 

#### [Disassembling Procedures]

- 1. Pull out the Large Hopper Assembly.
- 2. Unscrew the six  $\oplus$  screws **A** to remove the RH Side Plate (LH).
- 3. Unscrew the four ⊕ screws **B** to remove the PG Back Cover (L).
- 4. Remove the Extension Spring.
- 5. Disconnect the connector S511.
- 6. Unscrew the two  $\oplus$  screws C to remove the Sensor Base Staking Assembly.
- 7. Remove the one  $\oplus$  screw **D** to remove the Shutter Film Guide.
- 8. Remove the one ⊕ screw **E** to remove the Spacer(HS) and the Slider Guide. (NOT APPLIED UNIT REV, G)
- 9. Remove the Photo Interrupter from the Base Staking Assembly.



Model: EMP156	Date: 26-Apr-06	No.: RG155004a
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#### [Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

#### NOTE: (APPLIED UNIT REV, F)

- (1). When assembling the Photo sensor, bump it to the edge of Sensor Base Staking Assembly.
- (2). Adjust the gap between the Shutter Film Guide and the Glass surface.





- 2. Output adjustment of Photo Interrupter after assembly.
  - (1). Set a sheet of paper in the Hopper. (Paper thickness is 20lb or equivalent)
  - (2). Looking through the long hole which is rear of the Size Guide paper supply move the paper to the position where you can see the two adjusting ⊕ screws A and the one ⊕ screw B, then close the Hopper.
  - (3). It is confirmed that the table rose, and displays the output voltage value of the sensor for the Paper Height detection by the diagnosis mode.

Reissued:11-May-06

Model: EMP156	Date: 26-Apr-06	No.: RG155004a

- (4). Loosen the two ⊕ screws A from the front side.
- (5). Turn the one ⊕ screw B and move the Paper Height Sensor up and down so that the output voltage value may enter the range of 01D4 to 0213.
- (6). Tighten the two ⊕ screws A.
- (7). After adjustment, move the table down and open and close the Hopper. Then check the output voltage value again. Acceptable output voltage value is the range of 0177 to 026F.
- (8). The sensor is positioned again when not entering the above-mentioned value.





Assembling of the Photo Interrupter (for height sense of paper)

#### 7-332 EMP156 Maintenance Manual

Model: EMP156

Date: 26-Apr-06

No.: RG155004a

# 7.8.3.15. Removal of the Photo Interrupter (for height sense of paper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### [Disassembling Procedures]

- 1. Pull out the Feeder Hopper Assembly.
- 2. Unscrew the six  $\oplus$  screws **A** to remove the RH Side Cover (LH).
- 3. Unscrew the four  $\oplus$  screws **B** to remove the PG Back Cover (L).
- 4. Remove the Extension Spring.
- 5. Disconnect the connector S511.
- 6. Unscrew the two  $\oplus$  screws C to remove the Sensor Base Staking Assembly.
- 7. Remove the one  $\oplus$  screw **D** to remove the Shutter Film Guide.
- 8. Remove the one ⊕ screw **E** to remove the Spacer(HS) and the Slider Guide. (NOT APPLIED UNIT REV, G)
- 9. Remove the Photo Interrupter from the Base Staking Assembly.



Figure 7-728. Removal of the Photo Interrupter (for height sense of paper)

Model: EMP156	Date: 26-Apr-06	No.: RG155004a
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#### [Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

#### NOTE: (APPLIED UNIT REV, F)

- (1). When assembling the Photo sensor, bump it to the edge of Sensor Base Staking Assembly.
- (2). Adjust the gap between the Shutter Film Guide and the Glass surface.





- 2. Output adjustment of Photo Interrupter after assembly.
  - (1). Set a sheet of paper in the Hopper. (Paper thickness is 20lb or equivalent)
  - (2). Looking through the long hole which is rear of the Size Guide paper supply move the paper to the position where you can see the two adjusting ⊕ screws A and the one ⊕ screw B, then close the Hopper.
  - (3). It is confirmed that the table rose, and displays the output voltage value of the sensor for the Paper Height detection by the diagnosis mode.

Reissued:11-May-06

Date: 26-Apr-06

No.: RG155004a

- (4). Loosen the two 
   screws A from the front side.
- (5). Turn the one ⊕ screw B and move the Paper Height Sensor up and down so that the output voltage value may enter the range of 01D4 to 0213.
- (6). Tighten the two ⊕ screws A.
- (7). After adjustment, move the table down and open and close the Hopper. Then check the output voltage value again. Acceptable output voltage value is the range of 0177 to 026F.
- (8). The sensor is positioned again when not entering the above-mentioned value.



Figure Assembling of the Photo Interrupter (for height sense of paper)

## Technical Bulletin

Reissued:11-May-06

Model: EMP156

Date: 26-Apr-06

No.: RG155005a

### **RTB** Correction

Subject: Engine Maintenance Manual Revise		Prepared by: Y.Minakawa		
From: 2nd Tech Support Sec. Service Support Dept.				
Classification:	Troubleshooting	Part informat	tion	Action required
	Mechanical	Electrical		Service manual revision
	Paper path	Transmit/rec	eive	Retrofit information
	Product Safety	🗌 Other (	)	

The Engine Maintenance Manual was changed as follows:

1. **Replace** the following tables.

### 5.3.67. AHP JAM 1 (AHP VERTICAL PATH) (E120) AHP JAM 2 (AHP VERTICAL PATH) (E121)

PRIMARY FACTOR; 1. Paper did not arrive at AHP VERTICAL Path sensor of the auxiliary hopper. (E120) 2. Paper did not depart from AHP VERTICAL Path sensor of the auxiliary hopper. (E121)					
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Paper jam occurred.	1. Paper path is contaminated.	Remove: Piece of paper, dirt, etc.,	5.6, 5-483 Check jam obstacles.		
	2. Foreign objects are on the paper path.	Clean: Paper path			
	3. Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace: Corresponding Paper Guide			
	4. Roller wear before and behind the AHP Through Path1 sensor(S589), also pressure fault.	Replace: RTN Feed Roller (S) Assembly and RTN Feed Roller(SGP) Assembly	7.8.5.8, 7-654		
	5. Poor rotation of the motor by load fault.	Check: AHP Through Path 1 Motor (M526), and load.			
	6. Motor fault.	Check: By Driver Test 1 "05"	Driver Test 1 6.3, 6-5		
		Replace: AHP Through Path 1 Motor (M526)	7.8.5.2, 7-647		
	7. PCB fault.	Replace: HS10X Assembly	7.8.2.21, 7-606		
	8. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-77 on page 6-149		
	9. Table(AP) Assembly is not level.	Adjust to level Table(AP) Assembly.	7.8.3.8, 7-621		
2. Error was detected although	1. AHP VERTICAL Path sensor is contaminated.				
the paper jam did not occur.	2. AHP VERTICAL Path sensor fault.		Sensor Test 1 6.7, 6-12		
			7.8.5.5, 7-651		
	3. Poor connection of connectors, or cable damaged.	F 70	Figure 5-77 on page 5-149		
Mechanical location of	Motors, Sensors, etc., refer to Fi	ure 5-78 on page 5-150.			

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Model: EMP156

Date: 26-Apr-06

No.: RG155005a

### 5.3.68. AHP JAM 3 (AHP THROUGH PATH1) (E122) AHP JAM 4 (AHP THROUGH PATH1) (E123)

PRIMARY FACTOR; 1. Paper did not arrive at AHP Through Path1 sensor of the auxiliary hopper. (E122) 2. Paper did not depart from AHP Through Path1 sensor of the auxiliary hopper. (E123)					
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Paper jam occurred.	1. Paper path is contaminated.	Remove: Piece of paper, dirt, etc.,	5.6, 5-483 Check jam obstacles.		
	2. Foreign objects are on the paper path.	Clean: Paper path			
	3. Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace: Corresponding Paper Guide			
	4. Roller wear before and behind the AHP Through Path1 sensor(S590), also pressure fault.	Replace: RTN Feed Roller (S) Assembly and RTN Feed Roller(SGP) Assembly	7.8.4.7, 7-642		
	5. Poor rotation of the motor by load fault.	Check: AHP Through Path 1 Motor (M526), and load.			
	6. Motor fault.	Check: By Driver Test 1 "05"	Driver Test 1 6.3, 6-5		
		Replace: AHP Through Path 1 Motor (M526)	7.8.4.2, 7-606		
	7. PCB fault.	Replace: HS10X Assembly	7.8.2.21, 7-606		
	8. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-79 on page 6-152		
	9. Table(AP) Assembly is not level.	Adjust to level Table(AP) Assembly.	7.8.3.8, 7-621		
2. Error was detected although	1. AHP Through Path1 sensor is contaminated.				
the paper jam did not occur.	2. AHP Through Path1 sensor fault.		Sensor Test 1 6.7, 6-12		
			7.8.4.1, 7-636		
	3. Poor connection of connectors, or cable damaged.		Figure 5-79 on page 5-152		
Mechanical location of	Motors, Sensors, etc., refer to F	igure 5-80 on page 5-153.			

Troubleshooting 5-151

Model: EMP156

Date: 26-Apr-06

No.: RG155005a

### 5.3.69. AHP JAM 5 (AHP THROUGH PATH2) (E124) AHP JAM 6 (AHP THROUGH PATH2) (E125)

PRIMARY FACTOR; 1. Paper did not arrive at AHP Through Path2 sensor of the auxiliary hopper. (E124)					
PHENOMENON	CAUSES &CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Paper jam occurred.	1. Paper path is contaminated.	Remove: Piece of paper, dirt, etc.,			
	2. Foreign objects are on the paper path.	Clean: Paper path			
	3. Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace: Corresponding Paper Guide			
	4. Roller wear before and behind the AHP Through Path2 sensor, also pressure fault.	Replace: Roller	7.8.4.7, 7-642		
	5. Poor rotation of the motor by load fault.	Check: AHP Through Path2 Motor (M530), and load.	7.8.4.2, 7-637		
	6. Motor fault.	Check: By Driver Test 1 "06"	Driver Test 1 6.3, 6-5		
		Replace: AHP Through Path2 Motor (M530)	7.8.4.2, 7-637		
	7. PCB fault.	Replace: HS10X Assembly	7.8.2.21, 7-606		
	8. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-81 on page 5-155		
	9. Table(AP) Assembly is not level.	Adjust to level Table(AP) Assembly.	7.8.3.8, 7-621		
2. Error is detected although the	1. AHP Through Path2 sensor is contaminated.	Remove: Piece of paper, dirt, etc.,			
paper jam dose not occur.	2. AHP Through Path2 sensor fault.	Check: By Sensor Test 1 "AHP10 22"	Sensor Test 1 6.7, 6-12		
		Replace: AHP Through Path2 Sensor (S591)	7.8.4.1, 7-636		
	3. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-81 on page 5-155		
Mechanical location of	Motors, Sensors, etc., refer to F	igure 5-82 on page 5-156.			

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Reissued:11-May-06

## Technical Bulletin

Model: EMP156		Date: 26-Apr-06	No.: RG155005a
5.3.75. DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL DOUBL	E FEED 1 (BUILD-IN E FEED 2 (BUILD-IN E FEED 3 (BUILD-IN E FEED 4 (BUILD-IN E FEED 5 (AHP1 LC E FEED 6 (AHP1 LC E FEED 7 (AHP1 UF E FEED 8 (AHP1 UF E FEED 11 (AHP2 L E FEED 12 (AHP2 U E FEED 14 (AHP2 U	HOPPER LOWER) (E HOPPER LOWER) (E HOPPER UPPER) (E HOPPER UPPER) (E WER) (E154) WER) (E155) PER) (E155) PER) (E156) PER) (E157) OWER) (E15A) OWER) (E15B) PPER) (E15D)	150) 151) 152) 153)
PRIMARY FACTOR;	1. Double feed of 1st page from 2. Double feed of 2nd page a 3. Double feed of 1st page from 4. Double feed of 1st page from 5. Double feed of 1st page from 6. Double feed of 1st page from 7. Double feed of 1st page from 8. Double feed of 1st page from 9. Double feed of 1st page from 10. Double feed of 1st page from 11. Double feed of 1st page from 12. Double feed of 1st page from 13. Double feed of 1st page from 14. Double feed of 1st page from 15. Double feed of 1st page from 16. Double feed of 1st page from 17. Double feed of 1st page from 18. Double feed of 1st page from 19. Double feed of 1st page from 19. Double f	om BUILD-IN HOPPER LOWER. (E- nd over from BUILD-IN HOPPER L om BUILD-IN HOPPER UPPER. (E1 om BUILD-IN HOPPER UPPER. (E1 om AHP1 LOWER. (E154) and over from AHP1 LOWER. (E155) om AHP1 UPPER. (E156) and over from AHP1 UPPER. (E157) om AHP2 LOWER. (E15A) and over from AHP2 LOWER. (E155) and over from AHP2 LOWER. (E155) and over from AHP2 UPPER. (E151) evet, the paper double feed sensor metrates the paper more than 1.5 the paper thickness is managed for event	150) OWER. (E151) 52) PPER. (E153) ) B) D) detects that the thickness imes, or below 1/1.5 the ery hopper. r. When a hopper is
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper is double feeding.	<ol> <li>Paper fault. Check paper. Trailing edge of paper is torn or curved or wavy. Paper has smudge marks. Paper is poor quality. Hole punch in the paper is faulty. Paper has too much static electricity. Paper frequently double feeds.</li> </ol>	Check: Paper, and its environs.	Check jam obstacles.
	2. First sheet of paper takes out the second sheet.	Check: Pick Belt Assembly	
	3. Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.9.3, 7-664 7.9.9, 7-684
	<ol> <li>Table(AP) Assembly is not level.</li> </ol>	Adjust to level Table(AP) Assembly	. 7.4.1.8, 7-299 7.4.2.8, 7-321 7.8.3.8, 7-621

## Technical Bulletin

Reissued:11-May	-06		
Model: EMP156		Date: 26-Apr-06	No.: RG155005a
5.3.86. BUILD-I BUILD- BUILD- BUILD- BUILD- BUILD- BUILD-	N HOPPER LOWER P IN HOPPER LOWER F IN HOPPER LOWER F IN HOPPER UPPER P IN HOPPER UPPER P IN HOPPER UPPER P	PICK JAM 1 (E1A0) PICK JAM 2 (E1A1) PICK JAM 3 (E1A2) ICK JAM 1 (E1A3) ICK JAM 2 (E1A4) ICK JAM 3 (E1A5)	
PRIMARY FACTOR;	1. Paper from BUILD-IN HOPPEI PICK sensor. (E1A0) 2. Paper from BUILD-IN HOPPEI LOWER PICK sensor. (E1A1) 3. The BUILD-IN HOPPER LOWE HOPPER LOWER is too early. (E 4. Paper from BUILD-IN HOPPEI PICK sensor. (E1A3) 5. Paper from BUILD-IN HOPPEI UPPER PICK sensor. (E1A4) 6. The BUILD-IN HOPPER UPPE HOPPER UPPER is too early. (E	R LOWER does not arrive at BUILD- R LOWER does not depart from BUI ER PICK sensor passage time of pap E1A2) R UPPER does not arrive at BUILD-I R UPPER does not depart from BUIL R PICK sensor passage time of pap 11A5)	IN HOPPER LOWER LD-IN HOPPER Der from BUILD-IN N HOPPER UPPER LD-IN HOPPER er from BUILD-IN
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. There is no paper. (paper empty undetected)	<ol> <li>Empty Sensor is fault.         <ul> <li>(1) Built-in Hopper Lower</li> <li>Empty Sensor is fault</li> <li>(2) Built-in Hopper Upper</li> <li>Empty Sensor is fault</li> </ul> </li> </ol>	Check: Built-in Hopper Lower Empty Sensor is fault (S520) Function by Sensor Test 1 "PR16 2 <sup>7</sup> " Check: Built-in Hopper Upper Empty Sensor is fault (S540) Function by Sensor Test 1 "PR18 2 <sup>7</sup> " Replace: Built-in Hopper Lower Empty Sensor is fault	Sensor Test 1 6.7, 6-12 7.4.2.9, 7-324
		(S520) Replace: Built-in Hopper Upper Empty Sensor is fault (S540)	7.4.1.9, 7-302
	2. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-115 on page 5-210 Figure 5-116 on page 5-211
2. No pick of paper.	<ol> <li>Motor fault.         <ul> <li>(1) Built-in Hopper Lower</li> <li>Built-in Hopper Lower</li> <li>Pick Motor</li> <li>Pick Feed Motor</li> <li>(2) Built-in Hopper Upper</li> <li>Built-in Hopper Upper</li> <li>Pick Motor</li> <li>Pick Feed Motor</li> </ul> </li> </ol>	Check: Built-in Hopper Lower Pick Motor (M501) Function by Driver Test 1 "00" Check: Pick Feed Motor(M504) Function by Driver Test 1 "02" Check: Built-in Hopper Upper Pick Motor (M502) Function by Driver Test 1 "01" Replace: Built-in Hopper Lower Pick Motor (M501) Replace: Built-in Hopper Upper Pick Motor (M502)	Driver Test 1 6.3, 6-5
	2. PCB fault.	Replace: Pick Feed Motor (M504) Replace: HP12X Assembly CP63X Assembly	7.4.3.1, 7-336 7.6.1.9, 7-379 7.6.1.7, 7-377
	3. Table(AP) Assembly is not level.	Adjust to level Table(AP) Assembly.	7.4.1.8, 7-299

Troubleshooting 5-207

### Technical Bulletin

Reissued:11-May-06

Model: EMP156

Date: 26-Apr-06

No.: RG155005a

### 5.3.87. AHP LOWER PICK JAM 1 (E1A6) AHP LOWER PICK JAM 2 (E1A7) AHP LOWER PICK JAM 3 (E1A8) AHP UPPER PICK JAM 1 (E1A9) AHP UPPER PICK JAM 2 (E1AA) AHP UPPER PICK JAM 3 (E1AB)

PRIMARY FACTOR;	<ol> <li>Paper from AHP1 Lower doe</li> <li>Paper from AHP1 Upper doe</li> <li>Paper from AHP1 Lower doe</li> <li>Paper from AHP1 Upper doe</li> <li>* Trailing edge of the preceed of the following page reach</li> <li>AHP1 Lower pick sensor page</li> <li>AHP1 Lower pick sensor page</li> <li>CHECK POINTS</li> </ol>	s not arrive at AHP1 Lower pick sense s not arrive at AHP1 Upper pick sense s not depart from AHP1 Lower pick se s not depart from AHP1 Upper pick se ding page is not detected to the timing les the sensor. sage of the paper from AHP1 Lower is copper from AHP1 Lower is	or. (E1A6) or. (E1A9) ensor. (E1A7)* onsor. (E1AA)* g to which the paper s too early. (E1A8) s too early. (E1AB)
FILIOWENON	CAUSES & CHECK FOINTS	CORRECTIONS	Ref + Page
1. There is no paper. (paper empty undetected)	<ol> <li>Empty Sensor is fault.</li> <li>(1) AHP Lower Hopper AHP Lower Hopper Empty Sensor is fault.</li> <li>(2) AHP Upper Hopper AHP Upper Hopper</li> </ol>	Check: AHP Lower Empty Sensor (S573) Function by Sensor Test 1 "AHP13 2 <sup>5</sup> " Check: AHP Upper Empty Sensor (S582) Function by Sensor Test 1 "AHP12 2 <sup>7</sup> "	Sensor Test 1 6.7, 6-12
	Empty Sensor is fault.	Replace: AHP Lower Empty Sensor (S579) Replace: AHP Upper Empty Sensor (S573)	7.8.5.3, 7-648 7.8.2.5, 7-587
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-117 on page 5-215
2. No pick of paper.	<ol> <li>Motor fault.         <ol> <li>(1) AHP Lower Hopper</li> <li>AHP Lower Pick Motor</li> <li>AHP Lower Feed Motor</li> <li>(2) AHP Lower Hopper</li> <li>AHP Upper Pick Motor</li> <li>AHP Upper Feed Motor</li> </ol> </li> </ol>	Check: AHP Lower Pick Motor (M521) Function by Driver Test 1 "00" Check: AHP Lower Feed Motor (M524) Function by Driver Test 1 "01" Check: AHP Upper Pick Motor (M522) Function by Driver Test 1 "02" Check: AHP Upper Feed Motor (M525) Function by Driver Test 1 "03" Replace: AHP Lower Pick Motor (M521) Replace: AHP Lower Feed Motor (M524) Replace: AHP Upper Pick Motor	Driver Test 1 6.3, 6-5 7.8.5.2, 7-647
		(M522) Replace: AHP Upper Feed Motor (M525)	7.8.5.1, 7-646
		Replace: HS10X Assembly	7.8.2.21, 7-606
		Adjust to level Table(AP) Assembly.	7.8.3.8, 7-621

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## Technical Bulletin

Reissued:11-May-06

Model: EMP156	Date: 26-Apr-06	No.: RG155005a

2. **Replace** the following step and illustration.

Pg.7-299 SECTION 7.4.1.8. Removal of the Wire

3. Remove the two Retaining Rings.



Figure 7-357. Removal of the Wire

Pg.7-300



Figure 7-358. Assembling of the Wire

Reissued	:11-Ma	y-06
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Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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- 3. **Replace** the following procedure.
  - 2. After assembling, Set a sheet of paper in the Small Hopper and close it.
  - 3. Drive the Small Hopper and Table(AP) Assembly up by the diagnosis mode. (Sensor Test Code "13" : Refer to item 6.8. on page 6-19)
  - 4. Draw out the Small Hopper while depressing the latch.



#### Figure Assembling of the wire

 Put about 1,000 sheets of paper on the center of the table. (Paper thickness is 20lb or equivalent and Paper size is Letter or equivalent) and then check that Table(AP) Assembly is level.



Vel:	55U	eu. i	i -ivia	y-00			

Model: EMP156	Date: 26-Apr-06	No.: RG155005a

If not | G-H |  $\leq$ 0.5, loosen the one  $\oplus$  screw A for adjustment, and adjust to become | G-H |  $\leq$ 0.5 by raising or lowering the Wire Adjuster. After fasten the one  $\oplus$  screw A.

Next, check levels of Table(AP) Assembly from the Frame on the position I, J, and K, L. If not, loosen the  $\oplus$  screws **B** and **C** for adjustment, and adjust to become  $|I-J| \le 0.5$ ,  $|K-L| \le 0.5$  by raising or lowering the Wire Adjuster and Wire Adjuster(2).

After fasten the  $\oplus$  screw **B** and  $\oplus$  screw **C**.



Figure 7-360 Assembling of the wire

6. After adjust the Output of Photo Sensor. (Refer to item 7.4.1.15)

### Technical Bulletin

Reissued:11-May-06

Model: EMP156	Date: 26-Apr-06	No.: RG155005a

4. **Change** the following step and illustration.

Pg.7-321 SECTION 7.4.2.8. Removal of the Wire

3. Remove the two Retaining Rings.



Figure 7-383 Removal of the wire

Pg.7-322



Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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#### 5. **Replace** the following procedure.

- 2. After assembling, Set a sheet of paper in the Large Hopper and close it.
- 3. Drive the Large Hopper and Table(AP) Assembly up by the diagnosis mode. (Sensor Test Code "12" : Refer to item 6.8. on page 6-19)
- 4. Draw out the Large Hopper while depressing the latch.



#### Figure Assembling of the wire

 Put about 1,000 sheets of paper on the center of the table. (Paper thickness is 20lb or equivalent and Paper size is Letter or equivalent) and then check that Table(AP) Assembly is level.



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Model: EMP156	Date: 26-Apr-06	No.: RG155005a

If not | G-H |  $\leq$ 0.5, loosen the one  $\oplus$  screw A for adjustment, and adjust to become | G-H |  $\leq$ 0.5 by raising or lowering the Wire Adjuster. After fasten the one  $\oplus$  screw A.

Next, check levels of Table(AP) Assembly from the Frame on the position I, J, and K, L. If not, loosen the  $\oplus$  screws **B** and **C** for adjustment, and adjust to become  $|I-J| \le 0.5$ ,  $|K-L| \le 0.5$  by raising or lowering the Wire Adjuster and Wire Adjuster(2).

After fasten the ⊕ screw B and ⊕ screw C.



Figure 7-360 Assembling of the wire

6. After adjust the Output of Photo Sensor. (Refer to item 7.4.2.15)

Reissued:11-May-06

Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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6. **Replace** the following step and illustration.

Pg.7-621 SECTION 7.4.3.8. Removal of the Wire

3. Remove the two Retaining Rings.



Figure 7-718 Removal of the wire

Pg. 7-622



Figure 7-719 Assembling of the wire

Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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### 7. **Replace** the following procedure.

- 2. After assembling, Set a sheet of paper in the Feeder Hopper and close it.
- 3. Drive the Feeder Hopper and Table(AP) Assembly up by the diagnosis mode. (Sensor Test Code "14, 15, 16, 17" : (Refer to item 6.8 on page 6-19)
- 4. Draw out the Feeder Hopper while depressing the latch.



#### Figure Assembling of the wire

 Put about 1,000 sheets of paper on the center of the table. (Paper thickness is 20lb or equivalent and Paper size is Letter or equivalent) and then check that Table(AP) Assembly is level.



Model: EMP156	Date: 26-Apr-06	No.: RG155005a

If not | **G**-**H** |  $\leq$ 0.5, loosen the one  $\oplus$  screw **A** for adjustment, and adjust to become | **G**-**H** |  $\leq$ 0.5 by raising or lowering the Wire Adjuster. After fasten the one  $\oplus$  screw **A**.

Next, check levels of Table(AP) Assembly from the Frame on the position I, J, and K, L. If not, loosen the  $\oplus$  screws B and C for adjustment, and adjust to become  $|I-J| \le 0.5$ ,  $|K-L| \le 0.5$  by raising or lowering the Wire Adjuster and Wire Adjuster(2).

After fasten the  $\oplus$  screw **B** and  $\oplus$  screw **C**.





Figure 7-360 Assembling of the wire

6. After adjust the Output of Photo Sensor. (Refer to item 7.8.3.15)

|--|

Reissued	l:11-Ma	y-06

Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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- 8. Add the following adjustment procedure after 7.9.11.
  - 7.9.12. Adjustment of the amount of reversal of Regist Roller.
  - 1.When Paper Skews from return occurs by thin papers, change the amount of reversal of Regist Roller.



### Technical Bulletin



Write in the date 40 at the address 0408 and the date 28 at the address 0502. (Refer to "Maintenance Diagnostics" on page 6-1 and "Read / Write Memory Function on page 6-3)

<panel operation<="" th=""><th>1&gt;</th><th><panel display=""></panel></th></panel>	1>	<panel display=""></panel>
0,4,0,8	at Display (a)	
key	at Display (a)	
4,0	at Display (b)	0408=00 xx xx xx
key	at Display (b)	0408=40 xx xx xx
0,5,0,2	at Display (c)	
key	at Display (c)	
2,8	at Display (d)	0502=48 xx xx xx
key	at Display (d)	0502=28 xx xx xx

Open and close the Front Cover, because of using the input data. (Refer to item 3.3.1 on page 3-5)

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Model: EMP156	Date: 26-Apr-06	No.: RG155005a
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#### 2.When returning the amount of the reversal of the of Regist Roller to the value

of default.



# Technical Bulletin

### PAGE: 1/2

Model: EMP156 Dat		e: 8-Jun-06	5	No.: RG155006		
Subject: Firmware Release History (Engine)				Prepared	by: N. S	Sakamoto
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	Part inf	orma	tion [	Action	required
	Mechanical	Electric	al	[	Servic	e manual revision
	Paper path	Transm	it/rec	eive	Retrof	it information
	Product Safety	Other (		)		

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date	
Н	G1552685C	April 2006 Production	
G	G1552685B	January 2006 Production	
E	G1552685	August 2005 Production	

Version	Symptom Corrected		
Н	<ul> <li>EC#09 (Print Timeout Error)</li> <li>E312, E313 misdetection.</li> <li>E275 (OC HARD ERROR) misdetection.</li> <li>The image density sometimes decreases in Very Thick mode.</li> <li>Dirty background.</li> </ul>		
	<ul> <li>Other Changes</li> <li>The detection conditions for E072/E0 unnecessary occurrences.</li> <li>Toner density control was improved.</li> <li>The speed of the cleaner motor was performance.</li> <li>The PM counter for the discharge ca of drum revolutions (not the number</li> <li>Engine Microcode Revisions:</li> </ul>	073 were changed to prevent increased to improve cleaning ase assembly now counts the number of pages).	
	Microcode	Revision	
	Print Engine - Master	07	
	Print Engine - Slave	07	
	Print Engine - FPGA	08	
	AHP(HCF)	08	
	Stacker 1 (Container Stacker 1)	07	
	Stacker 2 (Container Stacker 2)	07	

# Technical Bulletin

PAGE: 2/2

Model: EN	Model: EMP156         Date: 8-Jun-06         No.: RG155006				
Version	Symptom Corrected				
G	<ul> <li>The image density decreases after original with high image coverage.</li> <li>EC#09 (print time-out error) occurs built-in hopper to the optional hopper</li> </ul>	The image density decreases after 400KC developments are made of an original with high image coverage. EC#09 (print time-out error) occurs when the machine switches from the built-in hopper to the optional hopper (AHP) during a print job.			
	<ul> <li>Other Changes</li> <li>The ON timing for the heat roll strip can separate from the heat roll easi</li> <li>The laser power for Very Thick Mod as Thick Mode).</li> </ul>	er Changes The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180). The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).			
	Engine Microcode Revisions:				
	Microcode Revision				
	Print Engine - Master	06			
	Print Engine - Slave	06			
	Print Engine - FPGA	07			
	AHP(HCF)	07			
	Stacker 1 (Container Stacker 1)	06			
	Stacker 2 (Container Stacker 2)	06			
E	<ul> <li>The motor control was changed to r</li> <li>E113 (Input Station Feed Jam4), E<sup>-</sup></li> </ul>	educe HCF feed jar 11B (Input Station Fo	ns. eed Jam12)		
	Other Changes:				
	Added Prior Pick Mode.				
	<ul> <li>Added "tracing paper" as a paper w</li> </ul>	eight.			
	<ul> <li>The amount of stack offset between paper</li> </ul>	i jobs can now be ac	djusted for long		
	<ul> <li>Added an Air Pressure Adjustment</li> </ul>				
	<ul> <li>Added an ST Stopper Adjustment (</li> </ul>	to the driver test).			
# Technical Bulletin

#### **PAGE:1/2**

Model: EMP156		e: 12-Jun-06	No.: RG155007		
Subject: Firmwar	e Release History (Controller)	Prepared by: N. Sakamoto			
From: 2nd Tech.	Support Sec. Service Support				
Classification:	Troubleshooting	Part informa		tion 🗌 Acti	on required
	Mechanical	Electric	al	🗌 Ser	vice manual revision
	Paper path	Transm	it/rec	eive 🗌 Reti	ofit information
	Other ( )				

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

Version	Symptom Corrected
em200	<ul> <li>The PostScript version displayed is incorrect. Incorrect: 3011 Correct: 3015</li> <li>Some minor symptoms with PostScript printing were corrected.</li> </ul>
	Other Changes.
	• Supports the new Rohs compliant hardware.
em114	<ul> <li>German and French languages were added. Japanese language was deleted.</li> <li>Paper Color function is supported with PostScript.</li> <li>Considers the Media Color when processing the Media Matching.</li> <li>"Printer - Paper Source - Paper Color" menu was added to the OCP.</li> <li>"Paper Color" menu was added to "Manage - System - Tray" and "Manage - System - Virtual Printer - each VPT - PostScript" of the Web Utility.</li> <li>String of the Color was added to "prtInputMediaColor" of the MIB.</li> <li>"ocpCustomMediaColor" was added in the MIB.</li> <li>Tracing Paper is supported as a Paper Type.</li> <li>The "Accounting Slip Sheet" function was added.</li> <li>"Accounting Slip Sheet: Enable/Disable" option was added to the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General" menu of the "Manage - System - Virtual Printer - each VPT - General"</li></ul>
	<ul> <li>The Image Shift function with PJL commands is supported.</li> </ul>

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Model: EMP1	56	Date: 12-Jun-06	No.: RG155007				
Version	Sympton	n Corrected					
•	<ul> <li>Letter and A4 can be selected with PCL and PJL, regardless of sheet orientation.</li> <li>"Auto Feed Orientation" option was added to "Manage - System - General - Options" of the Web Utility.</li> </ul>						
<ul> <li>The LPD Banner Page function was added.</li> <li>"LPD Banner Page: Enable/Disable" option was added to: "N System - Virtual Printer" (factory default: Disabled).</li> <li>Improved the switching time between the Standard Input Tray an Additional HCF.</li> <li>The "Printer - Paper Source - HCF Tray Control" menu was the OCP.</li> <li>The "HCF Tray Control" Menu was added to "System - Tray"</li> </ul>							
•	<ul> <li>A timeout (time limit) was added for LPR, RawTCP and IPP.</li> <li>The configuration Report function was added.</li> <li>The "configuration" option was added to the "Report" menu of the OCP for user adjustable parameters.</li> <li>The "Config Print" option was added to the "Service - Configuration" menu of the OCP for various engine parameters.</li> </ul>						
	Added new Default Virtual Printer "I Changed Default Virtual Printer "TE Changed engine parts name "Cyclo Web / MIB. Fixed various PCL/PostScript issue Improved compatibility with HP prin Corrected the page image position Corrected the EC#04 error when us Corrected the "2 on 4 off" test print Added the Engine FPGA version to Corrected a display error for the nu Corrected the PJL USTATUS comm	Ip" to port 9100. EXT" to "text" for port 3 one Filter" to "Fine Filt es. Iter functionality. for PostScript. sing the HCF2 Upper pattern. the Status Page. mber of OPC sheets mand response.	3100. er" on the OCP / Tray. used (10 <b>→ 11</b> ).				

# Technical Bulletin

## PAGE: 1/1

Model: EMP156 Da					e-06	No.: RG155006a	
Subject: Firmware Release History (Engine)					Prepared by: N. Sakamoto		
From: 2nd Tech							
Classification:	Troubleshooting	shooting		tion	Action	n required	
	Mechanical     Electrical		al		Servic	ce manual revision	
	Paper path	🗌 Transm	it/rec	eive	Retro	fit information	
	Product Safety	Other (		)			

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
I	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

Other changes:							
Heater control parameters were optimized to prevent unnecessary detections of the sensor error.							
08							
08							
ev.H)							
ev.H)							
08							
08							
iick mode. ied to prevent							

Technical Bulletin

PAGE: 2/2

Model: EM	IP156	Date: 21-June-06 No.: RG155006a						
Version	Sympton	Corrected						
	<ul> <li>The speed of the cleaner motor was not formation.</li> </ul>	s increased to im	prove cleaning					
	<ul> <li>performance.</li> <li>The PM counter for the discharge c</li> </ul>	ase assembly no	w counts the number					
	of drum revolutions (not number of pages).							
	Ϋ́,							
	Engine Microcode Revisions:							
	Microcode Revision							
	Print Engine - Master	07						
	Print Engine - Slave	07						
	Print Engine - FPGA	08						
	AHP(HCF)	08						
	Stacker 1 (Container Stacker 1)	07						
	Stacker 2 (Container Stacker 2)	07						
G	<ul> <li>The image density decreases after original with high image appearage</li> </ul>	400KC developn	nents are made of an					
	<ul> <li>FC#09 (print time-out error) occurs</li> </ul>	when the machin	ne switches from the					
	built-in hopper to the optional hopper	er (AHP) during a	a print job.					
		( ) 3						
	Other Changes							
	• The ON timing for the heat roll strip valve was changed so that the paper							
	<ul> <li>The laser power for Very Thick Mode was optimized (It is the same setting)</li> </ul>							
	as Thick Mode).		I (It is the same setting					
	/							
	Engine Microcode Revisions:							
	Engine Microcode nevisions.							
	Microcode	Revision						
	Print Engine - Master	06						
	Print Engine - Slave	06						
	Print Engine - FPGA	07						
	AHP(HCF)	07						
	Stacker 1 (Container Stacker 1)	06						
	Stacker 2 (Container Stacker 2)	06						
	· · · · · · · · · · · · · · · · · · ·							
E	The motor control was changed to	educe HCF feed	jams.					
	• E113 (Input Station Feed Jam4), E	I IB (Input Statio	n reed Jam12)					
	Other Changes:							
	<ul> <li>Added Prior Pick Mode.</li> </ul>							
	<ul> <li>Added "tracing paper" as a paper weight.</li> </ul>							

# Technical Bulletin

Model: EMP156		Date: 21-June-06	No.: RG155006a					
Version		Symptom Corrected						
<ul> <li>The amount of stack offset between paper.</li> </ul>			n jobs can now be adj	usted for long				
			,					

#### PAGE: 1/13

Model: EMP156	Dat	Date: 22-Jun-06		No.: RG155008		
Subject: Coroller Maintenance Manual Revision					Prepared by: Y.Minakawa	
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	Part informa		tion	Action	n required
	🗌 Mechanical	Electrical			Servic	ce manual revision
	Paper path	Transmit/rec		eive	Retro	fit information
	Product Safety	Other (		)		

The Controller Maintenance Manual was changed as follows.

- 1. **Delete** the following note.
  - Pg. Safety-2

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■ "Do not close the LoadSoft application or attempt to operate the printer while the file is downloading." on page 5-23.

■ "Refer to the installation instructions and readme files on the distribution CD for the latest information on the order in which components must be installed." on page 5-24.

- 2. **Delete** the following note.
  - Pg.2-4
    - User Software

All user software is provided on the System Software and Documentation CD. Refer to "System Software" on page 5-23 for additional information.

Date: 22-Jun-06

No.: RG155008

### 3. **Replace** the following table.

#### Pg.3-12

#### Table 3-2. Factory Default - Continued

				Factory Default Value	
Setup	OCP	Brightness			10
		Contrast	10		
		Buzzer Volume	3		
	Service	Password	System	(None) (Note1)	
			Service		(None) (Note1)
		Configuration	OPC Surface V	′olt	Enable (Note1)
			OCP Mode	User Menu	Disable (Note1)
				Auto Winding	Enable (Note1)
			Tray Adjust	Side Nozzle (Common in all Trays)	AutoSelect (Note1)
				Solenoid (Common in all Trays)	AutoSelect (Note1)
			Stacker Adjust	Job Offset (Common in all Trays)	Enable (Note1)
				Front Jogger (Common in all Trays)	0 (Note1)
				Rear Jogger (Common in all Trays)	0 (Note1)
				Stopper (Common in all Trays)	0 (Note1)
				Offset (Common in all Trays)	0 (Note1)
			Wind. Fuser Web		60 (Note1)
			Heat Roll Tmp		Normal (Note1)
			Transfer Current		Normal (Note1)
			Temp/Humid Ctrl		Enable (Note1)
			Thickness Setup		Normal (Note1)
		Halftone Selection	n		Disable
	System	Network (10/100/	IP Address		192.0.0.1
		1000B-T)	Subnet Mask	0.0.0.0	
			Gateway Addre	0.0.0.0	
			HTTP Port		80
		Calendar	Time Zone		GMT
			Date		(Date) (Note1)
			Time		(Time) (Note1)
		Country Code		1 (Note1)	
		Energy Save Mode	е		Enable
		Energy Save Time	l.		15
		Password			(None) (Note1)
		Emulation			Auto Select
		Public R/W			Disable
	Language				English

Note1: This parameter does not change to the factory default value when the Factory Default menu is performed.



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4. Replace the following note.

Pg.3-15

System Software

This menu is used for updating the system software. Refer to the Upgrade Instructions of the new system software for details.

5. **Replace** the following illustrations.



Figure 4-2. Accessing the Web Utilities

Pg.	4-4
-----	-----

Printer Display						
Ready	Veno	Vendor Information				
Paper Out Tray 1	Name	Garry Boom				
7	Phone Number	888-321-2346				
Manage	Fax Number	888-321-2348				
	Street Address	123 Joy Ave				
<b>Service</b>	City, State/Region, Zip/Postal Code	Canoga Park, CA, 91306				
	Country	USA				
	E-mail	garry-boom@mycompany.com				
• Service	URL	http://www.mycompany.com				

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Ready		Site	е Мар
Manage		IVIANAGE	
	Status	System	Configuration
	General	General	General
Service	Tray	PostScript	Events
	Tray 1	Options	Configuration
	Tray 2	Tray	Password
Contraction of the	HCF1 Lower	Tray 1	Miscellaneous
Status	HCF1 Upper	Tray 2	Calendar
General	HCF2 Lower	HCF1 Lower	Tray Map
Tray	HCF2 Upper	HCF1 Upper	Communication
Paper Output	Paper Output	HCF2 Lower	TCP/IP
Consumables	Consumables	HCF2 Upper	
Usage	Errors	HV Adjust	
Network	Usage	Paper Color	
Reports	Network	HCF Tray Control	
Revisions	TCP/IP	Paper Output	
System	Reports	Virtual Printer	
Configuration	Revisions	Accounting	
		Jobs	
		Serial No.	
		SERVICE	
	Service		Configuration
	Consumables	Password	
	PR Parts	License Ke	evcode
	Page Counter	Events	
	Documentation	Address B	ook
	Engine Config	Dealer	
	General		
	Unit Config		
	Stacker Adjust		
	Tray Adjust		
	Specific Engine Log		
	Reset		
	Log		

Figure 4-4. Site Map



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### Pg.4-8

Printer Display								
Pause/Off-Line	Service	Service - Consumables						
raperOut Hay I	Consumable	Current	Limit	Status				
	N/A Developer Mix [kc]	391	800	0				
<i>M</i> anage	🗖 Heat Roll [ki]	481	2400	0				
	OPC Sheet [kc]	36	450	0				
🥖 Service	🗖 Backup Roll [ki]	488	2400	0				
	🗖 Cleaner Brush [kc]	1189	2500	0				
	🔲 Transfer Belt [ki]	497	1600	0				
• Service	🗖 Fuser Web [ki]		N/A					
Consumables PR Parts	-	Reset Counter						

### Figure 4-6. Service-Consumables

### Pg.4-9

ff-Line	Service - PR Pa	Service - PR Parts						
d Tray 1	Consumable	Consumable Current Limit Status						
	TRANSFER WIRE & CLEANING PIECES [kc]	922	6000	0				
Manage	COROTORON CASE(F)/(R) [kc]	846	18000	ŏ				
	CHARGER WIRE & CLEANING PIECES [kc]	903	3000	õ				
Service	CHARGER GRID [kc]	5013	6000	Õ				
	CHARGER WIRE HOLDER F/R [kc]	922	9000	Õ				
	DISCHARGER WIRE & CLEANING PIECES [kc]	922	6000	0				
	🗖 ERASE COROTRON WIRE [kc]	922	6000	0				
umables	TC WIRE HOLDER (L)/(R)ASSEMBLY [kc]	922	6000	0				
rts Counter	🗖 OZONE FILTER(E) [kc]	934	6000	0				
entation Config	🗖 BR SEPARATOR [ki]	489	4800	0				
Come	🗖 STD HP LOWER PICK BELT [kqic]	197	9600	0				
tion	🗖 STD HP UPPER PICK BELT [kpi:]	44	9600	0				
	🗖 AHP LOWER PICK BELT [kpic]	16	9600	0				
	🗖 AHP UPPER PICK BELT [kpic]	11	9600	0				
	AHP2 LOWER PICK BELT [kpic]	50	9600	0				
	🗖 AHP2 UPPER PICK BELT [kpic]	27	9600	0				
	🗖 STI LOWER IDLER ROLLER ASSEMBLY [ki]	9	9600	0				
	🗖 STI UPPER IDLER ROLLER ASSEMBLY [ki]	4	9600	0				
	ST2 LOWER IDLER ROLLER ASSEMBLY [ki]	1	9600	0				
	🗇 ST2 UPPER IDLER ROLLER ASSEMBLY [ki]	0	9600	0				
	🗖 AIR FILTER [ki]	268	3200	0				
	AIR FILTER(FOR FEEDER UNIT1) [ki]	35	3200	0				
	🗖 AIR FILTER(FOR FEEDER UNIT2) [ki]	35	3200	0				
	DISCHARGER CASE [kc]	409	18000	0				
	CARBON ELECTRODE [ki]	409	6000	0				

Figure 4-7. Service-PR Parts



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Printer Display						
Pause/Off-Line	Serv	Service - Page Counter				
Paper Out Tray 1	Process [KCycles]	1186				
	Total Pages [KPages]	471				
Managa	Trayl [KPicks]	218				
Wiallage	Tray2 [KPicks]	56				
Sourcian	HCF1 Lower [KPicks]	21				
Service	HCF1 Upper [KPicks]	14				
	CS1 Lower [KSheets]	9				
	CS1 Upper [KSheets]	4				
Service	CS2 Lower [KSheets]	0				
Consumables DD Darts	CS2 Upper [KSheets]	0				
PR Parts Page Counter Documentation	Sample Tray [KSheets]	46				

#### Figure 4-8. Service-Page Counter

Pg.4-11



### Figure 4-9. Service-Documentation

Pg	.4-1	2
. 9		_

Printer Display					
Ready	Service - Engine Configuration				
Paper Out Tray 1	General Unit Config	Stacker Adjust Tray Adjust			
<i>M</i> anage	Specific Engine Log				
Service	Ger	ieral			
	ltem	Function			
	OPC Surface Volt	Enabled 💌			
• Service	OPC Auto Wind	Disabled 💌			
Consumables PR Parts	Winding Fuser Web	60 Pages 💌			
Page Counter Decommentation	Heat Roller Tmp	Lower 💌			
Engine Config	Transfer Current	Lower 💌			
Log	Temp_Humid_Ctr1	Disabled <b>•</b>			
<ul> <li>Configuration</li> </ul>	Thickness Setup	Normal			
	ระ	bmit			

Figure 4-10. Service-Engine Config-General

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Printer Display			
Pause/Off-Line		Se	rvice - Engine Configuration
Paper Out Tray 1	Gene	eral	Unit Config Stacker Adjust Tray Adjust
Managa	Specific Er	ngine Log	
Ivianage			
Service	_		Unit Config
•		Select	Unit
			Container Stacker 1
• Service			Container Stacker 2
Consumables			HCF1
PR Parts Page Counter Documentation			Submit





Printer Display							
Pause/Off-Line	Service - Engine Configuration						
Paper Out Tray 1	Gen	eral	Unit Config	Stacker	r Adjust	Tray Adjust	
_	Specific E	ngine Log					
<i>M</i> anage							
	Stacker Adjust						
	Sta	cker	Container1 Lower	Container1 Upper	Container2 Lower	Container2 Upper	
Samian	Job Offset		Enabled 💌	Enabled 💌	Enabled 💌	Enabled 💌	
Consumables PR Parts		Rear side Jogger	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
Page Counter Documentation	Stop Position	Front side Jogger	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
Engine Config Reset		Stopper	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
Log Configuration	Movement	Rear side Jogger	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
		Front side Jogger	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
		Stopper	0.00mm 💌	0.00mm 💌	0.00mm 💌	0.00mm 💌	
		Short	-Ostep 💌	-Ostep 💌	-Ostep 💌	-49step 💌	
	Rear offset	Long	-50step 💌	-50step 💌	-50step 💌	-50step 💌	
		Long Reverse	-39step 💌	-39step 💌	-39step 💌	-39step 💌	
		Short	+Ostep 💌	+Ostep 💌	+Ostep 💌	+47 step 💌	
	Front offset	Long	+50step 💌	+50step 💌	+50step 💌	+50step 💌	
		Long Reverse	+39step 💌	+39step 💌	+39step 💌	+39step 💌	
				Submit			

Figure 4-12. Service-Engine Config-Stacker Adjust

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Printer Display						
Pause/Off-Line	Se	Service - Engine Configuration				
Paper Out Tray 1	General	Unit Config Stacker	Adjust 🛛 🔹 Tray Adjust			
<i>M</i> anage	Specific Engine Log					
Service		Tray Adjust				
	Tray	Side Nozzle	Solenoid			
	Trayl	AutoSelect 💌	AutoSelect 💌			
Service	Tray2	AutoSelect 💌	AutoSelect 💌			
Consumables PR Parts	HCF1 Lower	AutoSelect 💌	AutoSelect 💌			
Page Counter Documentation	HCF1 Upper	AutoSelect 💌	AutoSelect 💌			
Engine Config Reset		Submit				

Figure 4-13. Service-Engine Config-Tray Adjust

Pg.4-16

Printer Display			
Pause/Off-Line	Se	rvice - Engine Co	onfiguration
Paper Out Tray 1	General	Unit Config Sta	cker Adjust Tray Adjust
<i>Ø</i> Manage	• Specific Engine Log		
Service		Specific Engine	e Log
	Clear	ltem	Error Code
		Error Code 1	
• Service		Error Code 2	
Consumables PR Parts		Error Code 3	
Page Counter Documentation		Error Code 4	
Engine Config Reset		Submit	



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Pg.4-17

Printer Display						
Ready		Service - Reset				
,	0	Factory Default	Restore image controller configuration to factory default setting. Same as factory default from OCP. System requires power cycle.			
	C	Network (NIC)	Restore network card factory default. System requires power cycle.			
🏉 Manage	0	Complete Reset	Complete reset: Factory default and Network (NIC)			
Service .	C	PM Counter	Reset Preventive Maintenance Counter.			
Service	0	Error Log	Delete the error log file.			
	0	Event Log	Delete the event log file.			
Service	_		Submit			

Figure 4-15. Service-Reset

Pg.4-19

Printer Display					
Ready	Service - Log				
Paper Out Tray 1	Cur	rent Visit			
Manage Service		(*) You may onter up to 256 observ	tors		
• Service		Submit			
Consumables	File	Last Modified	Size	Download	
PR Parts Page Counter	Error Log	THU OCT 13 14:31:12 2005	1029730		
Documentation Engine Config Reset	Event Log	THU OCT 13 14:31:44 2005	2000700		
Log Configuration	Software Log	THU OCT 13 14:19:06 2005	469442		
	Service Log	THU OCT 13 14:32:28 2005	161947		
	Engine Log	WED OCT 12 03:02:34 2005	97326		
	Engine Log 1	THU MAY 12 16:00:06 2005	97345		
	Engine Log 2	THU MAY 12 16:00:06 2005	97345		
	Engine Log 3	THU MAY 12 16:00:06 2005	97345		
	Engine Log 4	THU MAY 12 16:00:06 2005	65		
	Engine Log 5	THU MAY 12 16:00:06 2005	65		
	Specific Engine Log 1	TUE MAY 10 17:22:40 2005	97345		
	Specific Engine Log 2	TUE MAY 10 17:22:40 2005	97345		
	Specific Engine Log 3	TUE MAY 10 17:22:40 2005	97345		

Figure 4-16. Service-Log



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Pg.4-21

Printer Display		
Ready Report Out Trout 1	Configu	ration - Password
Paper Out I ray I		Password
	Enter New Password	
<i>M</i> anage	Confirm New Password	
Ø Service	(*)Password is If 0,	s an integer between 0 - 65535 password is disabled Submit

### Figure 4-17. Configuration-Password

Pg.4-22

Printer Display	
Ready	Configuration - License Keycode
Paper Out I ray I	Keycode
Manage	Assigned Keycode: 1234566
	Changing the license keycode requires power cycle. Any print data left in the printer will be lost.
	Submit

### Figure 4-18. Configuration-License Keycode

Pg	.4-23
• 9	

Printer Display			
Ready	Con	figuration - Events	
Faper Out Tray I	Preventive Maintenance Warning	The input value represents a percentage of the number of pages that triggers a PM.	
🏉 Manage	Preventive Maintenance	A report is sent when PM is due.	
Service	Engine Page Count Exceeds 200 KPages	A report containing page and subsystem counts is sent when the number of printed pages exceeds the input value.	
Service	Printer Logs 200 KPages	A report containing the error log, the event log, the software log and the service log is sent when the number of printed pages exceeds the input value.	
Configuration Password		Submit	



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Pg.4-24

Printer Display 😂			
Ready Paper Out Tray 1		Configuration	- Address Book
		Name of the Recipient	e-mail Address
		Joe Coogar	jcoogar@melina.com
Manage	🗹 🔂	Jason Smith	jsmith@iservice.com
	🗹 🔂	Lewis Doe	ldoe@himps.com
Samiaa		Mandy Hammington	mandyh@ompress.com
Service		Monica Gilbert	monicagilbert@travelhere.cor
		ghdfgh	fhfg@fgdsfg.dfg
• Service			
Configuration			
Password			
License Keycode			
Address Book			
Dealer			
		Delete Selected	Save

Figure 4-21. Configuration-Address Book

#### Pg.4-25

Printer Display					
Ready Benero Out Trees 1	Configur	Configuration - Dealer			
Faper Out I fay I	Name	Garry Boom			
	Phone Number	888-321-2346			
🏉 Manage	Fax Number	888-321-2348			
	Street Address	123 Joy Ave			
Service	City, State/Region, Zip/Postal Code	Canoga Park, CA, 91306			
	Country	USA			
	E-mail	garry-boom@mycompany.com			
Service     Configuration	URL	http://www.mycompany.com			
Password License Keycode		Submit			





\* Exists only if the Multi-protocol Network Interface Option is installed.

Figure 5-1. Controller Assembly and Parts

RICOH

Date: 22-Jun-06

6. **Add** the following steps.

Pg.5-10

Removing the Controller Main Board

- 6. Remove the 9 screws that secure the controller main board to the CE box.
- **7.** Remove the 2 screws that secure the connector cover and the connector panel to the controller main board.
- **8.** If the optional NIC (Network Interface Card) is installed, remove the 2 screws that secure the NIC to the connector panel.
- 9. Remove the connector cover and the dust cover from the connector.
- **10.** Remove the controller main board and place it on a flat surface.
- **11.** Remove the optional NIC (if installed) from the controller main board (4 screws).. **Note:** See "Network Interface Card" on page 5-13.
- **12.** Remove the memory module from socket J3 on the controller main board.
- **13.** Place the controller main board in an antistatic bag.

7. Delete the following.

System Software Pg.5-23 to 5-25

Controller Advanced Troubleshooting Pg.6-10 to 6-16

# Technical Bulletin

#### **PAGE: 1/6**

Model: EMP156		Date: 26-Jun-06		No.: RG155009	
Subject: PostScripr Programming Guide Revision				Prepared by: Y.Minakawa	
From: 2nd Tech. Support Sec. Service Support Dept					
Classification:	Troubleshooting Part information		ormat	tion 🗌 Actio	n required
	Mechanical	Electrical		🖂 Servi	ce manual revision
	Paper path	Transmit/rec		eive 🗌 Retro	fit information
	☐ Other (  )				

The Service Manual was corrected as follows.

1. Change or add the items in **bold** in the Table of Contents.



Model: EMP156

Date: 26-Jun-06

No.: RG155009

## Table of Contents

Overview
Device Setup
Page Device Parameters
Printer
Print Behavior With PJL Environment Variables
TraySwitch
InputAttributes
InputTrayMask
PageSize
MediaType
MediaColor
MediaWeight
LeadingEdge
Best Fit
OutputType
OutputTrayMask
Establishing Breaks Within a Job
Interpreter Parameters
User Parameters
MaxFontItem
System Parameters
MaxDisplayList
MaxFontCache
MaxPermanentVM
MaxRasterMemory
MaxSourceList
RamSize
Product Strings
Model Strings
Device Parameters
Device Parameters of Type /FileSystem
Parameters for Disk
Parameters for ROM
Parameters for Fontset
Parameters for Scsi
Categories and Resource Instances
Regular Resources
OutputDevice
Resources Whose Instances Are Implicit
Resources Used in Defining New Resource Categories
Compatibility

RICOH

Technical	<b>B</b> ulletin

Model: EMP156	Date: 26-Jun-06	No.: RG155009

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Level 1 Compatibility Operators	. 25
Compatibility Operator Descriptions	. 26
Paper Size Compatibility Operators	28
Paper Tray Compatibility Operators	28



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No.: RG155009

TOC-2

2. **Replace** the following pages.

Pg.6

#### TraySwitch

This boolean controls whether other trays of the same paper size, media type and media weight are used when the current tray empties. If this parameter is true, then, when a tray empties the printer searches for a tray containing the same media starting with Tray 1 and searches in order through HCF. The value of Priority is not used to determine the tray switching order.

#### InputAttributes

Please refer to "Compatibility Operator Descriptions" on page 26 for supported tray number.

#### InputTrayMask

This operator masks individual input tray (Hopper) for Autocascade.

Example: [x] statusdict / inputTrayMask get exec x means integer of tray number.

#### PageSize

PS Value	Meaning	Paper Size
[612 792]	Letter	11" x 8.5"
[612 1008]	Legal	14" x 8.5"
[792 1224]	Ledger	11" x 17"
[522 756]	Executive	10.5" x 7.25"
[612 936]	Folio	13" x 8.5"
[864 1296]	Super B	12" x 18"
[595 842]	A4	294mm x 210mm
[842 1190]	A3	294mm x 420mm
[516 728]	B5	257mm x 182mm
[728 1032]	B4	257mm x 364mm
-	Custom	-



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No.: RG155009

3. **Add** the following pages.

Pg.7

### MediaType

PS Value	Meaning	Priority
Plain	Plain	Highest
Bond	Bond	
Recycled	Recycled	
Color	Color	
Prepunched	Prepunched	
Letterhead	Letterhead	
Preprinted	Preprinted	
Special	Special	
Other	Other	
Label	Label	
Tracing paper	Tracing paper	Lowest
null *	-	-

\* : When the PS value is null, printer selects the Plain paper type.

#### MediaColor

PS Value	Meaning	Priority
White	Plain	Highest
Blue	Bond	
Buff	Recycled	
Goldenrod	Color	
Green	Prepunched	
Pink	Letterhead	
Yellow	Preprinted	
Color 1 *	Custom Color 1	
Color 2 *	Custom Color 2	
Color 3 *	Custom Color 3	
(omitted)		
Color 15*	Custom Color 15	
Color 16*	Custom Color 16	Lowest
null **	-	-

\*: PS Value for Custom Color can be changed by Web.

\*\* : When the PS value is null, printer selects any paper color.

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#### Pg.8

### MediaWeight

PS Value	Meaning
16	16lb (60g/m <sup>2</sup> )
17	17lb (64g/m <sup>2</sup> )
(omitted)	
53	53lb (199g/m <sup>2</sup> )
null *	-

\* : When the PS value is null, printer selects the any paper weight.

### LeadingEdge

PS Value	Meaning
2	Short Edge Feeding (SEF)
3	Long Edge Feeding (LEF) *
null	-

\* : LEF is prior to SEF when:

- LeadingEdge is null.
- PaperSize supports both LEF and SEF.
- Best fit is disabled.

#### Best Fit

EMP156 supports "Best Fit", which means that it changes policies how to select paper when the requested paper is not installed in the printer, by changing "Best Fit" value. The supported Best Fit values are enabled and disabled. It can be changed by OCP, and by the PS job also. The following selections show the details.

Best Fit: enabled

When the Best Fit is enabled, the printer selects the most preferred paper already instlled in the printer. The following page device keys are set to achieve this function:

/DeferredMediaSelection: false

/Policies/pageSize: 3

Every attribute of paper has the priority to select the most preferred paper. The following table shows the priority of attributes.

#### **PAGE: 1/3**

Model: EMP156 Da		Dat	ate: 26-Jun-06		No.: RG155010	
Subject: Engine Maintenance Manual Revise				Prepared by: Y.Minakawa		
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	Part info	ormat	tion	Action	n required
	Mechanical	Electrica	al		Servic	e manual revision
	Paper path	🗌 Transmi	it/rec	eive	Retrof	fit information
	Product Safety	Other (		)		

Apply the following changes to your Engine Maintenance Manuals.

Change the following procedures and illustrations.

- SECTION 7.6.1.58 Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 1)
  - 5. Remove the Pulley Assembly (2 Hex Socket Set Screws).
  - 6. Remove Stepping Motor 6.

RICOH



Figure 7-518 Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 1)

RICOH	Technical Bulletin		PAGE: 2/3
Model: EMP156		Date: 26-Jun-06	No.: RG155010

- SECTION 7.6.1.59 Removal of Stepping Motor 6, Timing Belt (for Pick Belt Unit 2)
  - 5. Remove the Pulley Assembly (2 Hex Socket Set Screws).



Figure 7-521. Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 2)

- SECTION 7.8.2.7 Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 1)
  - 6. Remove the Pulley Assembly (2 Hex Socket Set Screws).
  - 7. Remove Stepping Motor 6.





Figure 7-676. Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 1)

- SECTION 7.8.2.8 Removal of Stepping Motor 6, Timing Belt (for Pick Belt Unit 2)
  - 6. Remove the Stepping Motor (3 Phillips head screws [B]).



Figure 7-679. Removal of the Stepping Motor 6, Timing Belt (for Pick Belt Unit 2)

#### PAGE: 1/22

Model: EMP156			Dat	e: 26-Jun-06	No.: RG155011
Subject: PCL5e	Programming Guide Rev	vision		Prepared by: N.S	akamoto
From: 2nd Tech.	Support Sec. Service Support	Dept			
Classification:	Troubleshooting	Part info	ormat	tion 🗌 Actior	n required
	Mechanical	Electric	al	🖂 Servio	ce manual revision
	Paper path	Transm	it/rec	eive 🗌 Retro	fit information
	Other ( )				

The PCL5e Programming Guide was changed as follows.

### 1. **Replace** the following Table of Contents.

Pg TOC-3

**RICOH** 

Example 2: Testing the Postnet Font	-3
Example 3: The Startup File	-3
Changing the Startup File	-3
Deleting the Startup File	-4
Example 4: Loading a Single Macro into RAM	-4
Example 5: Testing the Graybar Macro	-4
Example 6: The Startup File	-4

## Chapter 3. Fonts and Forms Installer

Overview	
Supported Font Formats	
Supported Macro Formats	
Files Created During Installation	
Overlay Macro	
Network Issues	
Access Rights	
PCL Fonts Dialog.	
Edit Installed Font Dialog	
PCL Fonts Install Dialog	
Missing Font Information Dialog.	
PCL Macros Dialog	
Edit Installed Macro Dialog	
Install PCL Macros Dialog.	
Macro Information Dialog	
Configure Dialog	



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No.: RG155011

2. **Replace** the following sentences.

Pg.1-7

Valid media type names are:

Plain, Prepunched, Preprinted, Letterhead, Label, Bond, Recycled, Color, Tracing, Special, and Other.

#### 3. **Replace** the following table.

Pg.1-26

#### **Command Summary (Continued)**

Function	Variable	Command	Hexidecimal	Decimal
Page side selection	Next side	ESC & a 0 G	1B 26 61 30 47	27 38 97 48 71
	Front side	ESC & a 1 G	1B 26 61 31 47	27 38 97 49 71
	Back side	ESC & a 2 G	1B 26 61 32 47	27 38 97 50 71
Paper (media) source*	Auto Select and Auto Cascade	ESC & / 0 H	1B 26 6C 30 48	27 38 108 48 72
(with High Capacity	Tray 1 (Lower)	ESC & / 1 H	1B 26 6C 31 48	27 38 108 49 72
Feeder; selected tray	Tray 2 (Upper)	ESC & / 2 H	1B 26 6C 32 48	27 38 108 50 72
must be installed)	HCF1 Lower	ESC & / 3 H	1B 26 6C 33 48	27 38 108 51 72
	HCF1 Upper	ESC & / 4 H	1B 26 6C 34 48	27 38 108 52 72
	HCF2 Lower	ESC & / 5 H	1B 26 6C 35 48	27 38 108 53 72
	HCF2 Upper	ESC & / 6H	1B 26 6C 36 48	27 38 108 54 72
<ul> <li>Standard mode input selections.</li> </ul>	tray selection is shown here. Refer to	"Paper Source" on pa	ge 1-10 for information on	additional mode
Media type	Plain	ESC &n6WdPlain	1B 26 6E 36 57 64 50 6C 61 69 6E	27 38 110 54 87 100 80 108 97 105 110
	Bond	ESC &n5WdBond	1B 26 6E 35 57 64 42 6F 6E 64	27 38 110 53 87 100 66 111 110 100
	Recycled	ESC &n9WdRecycled	1B 26 6E 39 57 64 52 65 79 63 6C 65 64	27 38 110 57 87 100 82 101 99 121 99 108 101 100
	Color	ESC &n6WdColor	1B 26 6E 36 57 64 43 6F 6C 6F 72	27 38 110 54 87 100 67 111 108 111 114
	Prepunched	ESC &n11WdPrepunched	1B 26 6E 31 31 57 64 50 72 65 70 75 6E 63 68 65 64	27 38 110 54 87 100 80 114 101 112 118 110 99 104 101 100
	Letterhead	ESC &n11WdLetterhead	1B 26 6E 31 31 57 64 4C 65 7474 65 72 68 65 61 64	27 38 110 49 49 87 100 76 101 116 116 101 114 104 101 100
	Preprinted	ESC &n11WdPreprinted	1B 26 6E 31 31 57 64 50 72 65 70 72 69 6E 74 65 64	27 38 110 49 49 87 100 80 114 101 112 114 105 110 101 100
	Tracing	ESC &n8WdTracing	1B 26 6E 38 57 64 54 72 61 63 69 6E 67	27 38 110 56 87 100 84 114 97 99 105 110 103
	Special	ESC &n8WdSpecial	1B 26 6E 38 57 64 53 70 65 63 96 61 72	27 38 110 49 49 87 100 83 112 101 99 105 108
	Other	ESC &n6WdOther	1B 26 6E 36 57 64 4F 74 68 65 72	27 38 110 54 87 100 79 116 104 101 114
	Label	ESC &n6WdLabel	1B 26 6E 36 57 64 4C 61 62 65 6C	27 38 110 54 87 100 76 97 98 101 108
Paper (media) destination	Auto Cascade Face down	ESC & /0 G	1B 26 6C 30 47	27 38 108 48 71
	Container 1 Lower Face down	ESC & / 5 G	1B 26 6C 35 47	27 38 108 53 71
	Container 1 Upper Face down	ESC & / 6 G	1B 26 6C 36 47	27 38 108 54 71
	Container 2 Lower Face down	ESC & / 7 G	1B 26 6C 37 47	27 38 108 55 71
	Container 2 Upper Face down	ESC & / 8 G	1B 26 6C 38 47	27 38 108 56 71
	Sample Tray Face down	ESC & / 9 G	1B 26 6C 39 47	27 38 108 57 71
	Auto Cascade Face up	ESC & / 10 G	1B 26 6C 31 30 47	27 38 108 49 48 71
	Container 1 Lower Face up	ESC & / 15 G	1B 26 6C 31 35 47	27 38 108 49 53 71
	Container 1 Upper Face up	ESC & / 16 G	1B 26 6C 31 36 47	27 38 108 49 54 71
	Container 2 Lower Face up	ESC & / 17 G	1B 26 6C 31 37 47	27 38 108 49 55 71
	Container 2 Upper Face up	ESC & / 18 G	1B 26 6C 31 38 47	27 38 108 49 56 71

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#### Environment Variables Summary (Continued)

Variable	Values	Supported?
INHCF2LOWERSIZE	LETTER (LEDGER, LEGAL, LETTERSEF, LEGALLEF, FOLIO, FOLIOLEF, SUPERB, EXECUTIVE, A3, A4, A4SEF, JISB4, JISB5, CUSTOM)	Yes
INHCF2UPPERSIZE	LETTER (LEDGER, LEGAL, LETTERSEF, LEGALLEF, FOLIO, FOLIOLEF, SUPERB, EXECUTIVE, A3, A4, A4SEF, JISB4, JISB5, CUSTOM)	Yes
JAMRECOVERY	ON (OFF)	Yes
JOBOFFSET	ON (OFF)	Yes
LANG		No
LOWTONER	CONTINUE (STOP)	No
MANUALFEED	OFF (ON)	Yes
MEDIASOURCE	AUTO (TRAY1, TRAY2, HCF1LOWER, HCF1UPPER, HCF2LOWER, HCF2UPPER)	Yes
MEDIATYPE	PLAIN (BOND, RECYCLED, COLOR, PREPUNCHED, LETTERHEAD, PREPRINTED, TRACING, SPECIAL, OTHER, LABEL)	Yes
ORIENTATION	PORTRAIT (LANDSCAPE)	Yes
OUTBIN	OPTIONALOUTPUTBIN5 (AUTO, OPTIONALOUTPUTBIN6, OPTIONALOUTPUTBIN7, OPTIONALOUTPUTBIN8, OPTIONALOUTPUTBIN0, AUTOFACEUP, OPTIONALOUTPUTBIN5FACEUP OPTIONALOUTPUTBIN6FACEUP OPTIONALOUTPUTBIN7FACEUP OPTIONALOUTPUTBIN8FACEUP	Yes
PAGEPROTECT		No
PAPER	LETTER (LEDGER, LEGAL, LETTERSEF, LEGALLEF, FOLIO, FOLIOLEF, SUPERB, EXECUTIVE, A3, A4, A4SEF, JISB4, JISB5, CUSTOM)	Yes
PASSWORD*	0 (0 - 65535)	Yes
PERSONALITY	PCL	No
PITCH	10 (0.44 to 99.99)	Yes
PRTPSERRS		No
PTSIZE	12 (4.00 to 999.75)	Yes
QTY	1 - 65535	Yes
RESOLUTION	600	Yes
RET	ON (OFF)	No
SYMSET	PC8 (DESKTOP, ISO4, ISO6, ISO11, ISO15, ISO17, ISO21, ISO60, ISO69, ISOL1, ISOL2, ISOL5, LEGAL, MATH8, MSPUBL, ROMAN 8, PC850, PC852, PC8DN, PC8TK, PIFONT, PSMATH, PSTEXT, VNINTL, VNMATH, VNUS, WIN30, WINL1, WINL2, WINL5)	Yes
TIMEOUT	300	Yes
* INQUIRE PASSWOR	D is not supported.	

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Parameter	Variables/Functional Range
	media size (LETTER, LEDGER, LEGAL, LETTERSEF, LEGALSEF, FOLIO, FOLIOLEF, SUPERB, EXECUTIVE, A3, A4, A4SEF, JISB4, JISB5, CUSTOM*)
INSERTMEDIA="media size, media source, media type"	media source (TRAY1, TRAY2, HCF1LOWER, HCF1UPPER, HCF2LOWER, HCF2UPPER)
	media type (PLAIN, BOND, RECYCLED, COLOR, PREPUNCHED, LETTERHEAD, PREPRINTED, SPECIAL, TRACING, OTHER, LABEL)
INSERT="sheet #1, sheet #2,,,"	Maximum 32 numeric characters, comma (,), and space () enclosed in double quotation marks. Maximum 4 digit page number parts divided by comma.
* When CUSTOM is used, two nu inch. For example: @PJL JOB N/	Imbers must indicate the paper dimensions, expressed in units of 1/72 AME-"sample" INSERTMEDIA="CUSTOM,612,792,TRAY1" INSERT="1"

4. **Replace** the following sentences.

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#### Format of Disk Fonts and Forms

Disk fonts created using the Font and Forms Installer are the correct format for storing on the printer's hard disk drive. See Chapter 3 for information on the Font and Forms Installer.

Disk forms must be stored in PCL macro format without the ESC&f0X (Start Macro Definition) and ESC&f1X (Stop Macro Definition) commands.

Consult the PCL 5 Printer Language Technical Reference Manual for more information on the structure PCL soft fonts and macros.

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5. Add the following after chapter 2.

# Chapter 3 Fonts and Forms Installer

### Overview

Through the Fonts and Forms Installer you can download, edit, and delete fonts and macros. The Fonts and Form Installer is accessed from the Windows printer driver: Fonts folder for fonts or Forms and Watermarks folder for macros.

In order to use a font or a macro (form), it must first be installed on either the host or on the printer's hard disk. The accessibility of the fonts/macros depends on their installed location. Host installed fonts/macros are visible only to a user on that host. Printer disk fonts/macros are visible to all network users that have the Fonts and Forms Installer on their system and have access to the Global Printer Information File.

Additionally, once fonts/macros have been installed on the host, they can be downloaded to the printer's RAM to improve performance.

Installed PCL fonts appear as printer-resident fonts in applications. Windows may substitute an appropriate screen font for the selected printer font, but the printed document will contain the real font.

Installed macros appear in the printer driver's Forms and Watermarks folder and can be selected as overlay macros.

When selecting a font or macro for use in an application, be aware that its location has an impact on performance. A font or macro can reside in three different locations:

- Host
- Printer hard disk
- Printer RAM

*Host* - Host based fonts and macros are downloaded to the printer along with each print job that requests the use of that font or form. Print time may increase because of the extra overhead of having to download the font or form in addition to the print job itself. However, you are guaranteed that this font is available to your print job because it is essentially part of your print job.

**Printer Hard Disk** - Fonts and forms installed on the printer's hard disk provide the advantage of being visible to all users in a network environment. Eliminating the need to download also helps printing speed, but there is still some overhead as fonts and forms must be uploaded to printer RAM.

**Printer RAM** - Printer memory based fonts and forms provide the best performance. However, they are subject to deletion if the printer's power is turned off, and, therefore, there is a possibility that they may not be available when requested. Fonts and forms must first be installed on the host or the printer's hard disk in order to download them to printer memory. Printer memory-resident fonts and forms are visible only to the host that performed the download. In a network environment, they are not be visible to other users.

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### Supported Font Formats

PCL Bitmap Fonts - The Fonts and Forms Installer recognizes PCL bitmap font files.

### Supported Macro Formats

Any file containing a valid PCL macro definition is supported. PCL macros can be created from any document by selecting the "PCL Macro" output in the Job Options folder of the Windows printer driver (Page Description Language must be set to PCL5e in the Advanced folder).

### Files Created During Installation

The Fonts and Forms Installer creates a Printer Font Metric (PFM) file for each font installed. For host installed fonts, the PFM is created in the directory where the font is installed.

For printer disk fonts installed from your system, the PFM is created in your PCL fonts directory and then copied to the same directory in which the selected Printer Information File resides (so there are two copies of this file).

When an Update is performed, PFM files for printer disk fonts not installed from your system are copied from the directory in which the selected Printer Information File resides to your PCL fonts directory. All copies of a PFM file for a given font are deleted when the font is deleted.

When you select a Printer Information File that was created by the system administrator, a copy of this file is created in your PCL fonts directory with the same name but with a .LOC extension. The Fonts and Forms Installer does not provide any means for deleting this local copy of the Printer Information File.

**NOTE:** No additional files are created for macros.

**PFM File** - Windows printer drivers rely on Printer Font Metric (PFM) files for a description of printer fonts.



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### **Overlay Macro**

An overlay macro is a PCL macro that is called at the end of each page of a print job. It can be used to place a logo on the page or to print forms.

#### Network Issues

Downloading, Editing, and Deleting Printer Disk Fonts and Macros - If you have the appropriate access rights and you attempt to download, edit, or delete a printer disk font or macro, and the Fonts and Forms Installer determines that the Printer Information File and its local copy are different, a message informs you that the action has been denied and an update is performed automatically. You can then attempt the download, edit, or delete again.

Printer Information File - Be sure to use Universal Naming Convention (UNC) names when selecting the Printer Information File. (For example: \\myfileserver\public\filename.)

### Access Rights

Access rights are implemented to limit the operations that can be performed on printer disk fonts and macros that many users may rely upon. To attain access rights, use the Hidden Key (Ctrl > Shift) when clicking Install on the Install PCL Fonts Dialog box. Contact your system administrator for additional information.

## PCL Fonts Dialog

The PCL Fonts dialog includes the basic tools for the installation and management of printer fonts. In addition to displaying the names and locations of fonts installed using the Fonts and Forms Installer, it provides functions for downloading, editing, deleting, updating, and installing fonts.

TCLubInGrph Db 8pt bold <host> B*10I 10pt italic <printer disk=""></printer></host>	Close
R*12I 12pt italic <host></host>	Download
	<u></u> dit
	Delete
	Update
	Install fonts
	Configure
	Help

Installed Fonts - The Installed Fonts lists the names and locations of all fonts installed using the Fonts and Forms Installer (if no Printer Information File has been selected via the Configure dialog, only host installed fonts appear in this list). You can download, edit, or delete any font in this list by selecting the entry and clicking on the appropriate button. The download, edit, and delete buttons are disabled for printer disk fonts unless you have the appropriate access rights.

Additional information about a particular font appears in a status line below the list box when that font is selected.

The fonts listed in this window appear in the list of available fonts in your application.

Font Status Line - This line displays additional information about the font currently selected in the Installed Fonts list. This information consists of the font name, the ID assigned by the Fonts and Forms Installer, orientation, the installed location (either host or printer disk), and the file name of the installed font (host installed fonts include a path). The font name and ID can be modified by editing the font.

**Download** - Copies the selected font to printer memory (RAM) and makes it permanent. Once downloaded, the selected font is denoted with the word *memory*, and the Memory resident checkbox in the Edit Installed Font window is enabled (checked).

#### NOTE:

Fonts that you download from your system appear as memory-resident on your system only.

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All fonts have an identification number (ID) associated with them that is automatically generated by the Fonts and Forms Installer at the time of installation. In assigning IDs, the system will not introduce conflicts by assigning an ID that is already used by a host-installed font on your system or a printer disk-installed font.

However, it is possible to install a font on your system which has the same ID as a font installed on another user's system. The Fonts and Forms Installer does not know which IDs are used by host-installed fonts on other systems and therefore cannot prevent duplicates at installation time. This allows for the possibility of ID conflicts when multiple users download host-installed fonts to RAM. If you download a host font that has the same ID as a host font previously downloaded by another user, your font will still be downloaded but it will overwrite the other user's font.

To avoid such conflicts, it is advised that the system administrator allocate a unique range of ID values for each user. Then, before downloading a host font or macro, edit it and change the Font ID to one of the IDs allocated to you.

Note that fonts residing in printer memory are deleted when the printer's power is cycled. If you suspect that a font you downloaded is no longer in printer memory, you should edit it and uncheck the Memory resident checkbox. Failure to do so will result in a different printer font being selected when the font is used in your document.

```
NOTE:
The Download button will be disabled for printer disk fonts.
```

Edit - Enters the Edit Installed Font dialog.

#### NOTE:

The Edit button will be disabled for printer disk fonts unless you have the appropriate access rights.

**Delete** - Removes the highlighted, installed item. The printer driver, Fonts and Forms Installer, and your applications will no longer be aware of deleted items. In addition to deleting the reference, delete provides the option to delete the actual font (and PFM file) file from its installed location. Answering YES to the prompt will delete the reference and the file, NO will delete only the reference, and CANCEL will not delete anything.

**NOTE:** The Delete button will be disabled for printer disk fonts unless you have the appropriate access rights.

Update - Causes your local system to be updated with information from the Printer Information File. An update is performed automatically each time you enter the Fonts and Forms Installer, and when a Printer Information File is selected via the Configure button. However, while in the Fonts and Forms Installer, you will not be aware of any fonts or macros installed on the printer disk by another user unless you perform an update by pressing the Update button. The Installed Fonts (or Installed Macros) list box will reflect any changes resulting from the update.

The Update button is only enabled if a Printer Information File has been selected via the Configure button in either the PCL Fonts dialog or the PCL Macros dialog.
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Update is only necessary in a network environment.

#### NOTE:

In addition to explicitly selecting the Update button, automatic (and sometimes transparent) updates occur under the following conditions:

- When a Printer Information File is selected.
- Each time the Fonts and Forms Installer is entered when a Printer Information File is selected.
- When you attempt to download, edit, or delete a printer disk font and the local copy of the Printer Information File is out of date.

Install fonts - Enters the Install PCL Fonts dialog.

Configure - Enters the Configure dialog. See Configure Dialog on page 3-18.

### **Edit Installed Font Dialog**

The Edit Installed Font window allows modification of some basic attributes of installed fonts.

Edit Installed	Font		×
Description:	ITCLubinGrph Db 8pt bold	ок	
Font file:	32\Mercury\D3\Fonts\PCL\B_LBLNB1.FNT	Cancel	
<u>N</u> ame:	ITCLubInGrph Db	Halp	
Font <u>I</u> D:	1001		
Memory resid	lent 🗖		
Family:	C <u>R</u> oman C Mod <u>e</u> rn C <u>D</u> ecorative		
	⊂ S <u>w</u> iss ⊂ <u>S</u> cript ⊙ Don' <u>t</u> care		

**Description** - Identifies the font as described in the Installed Fonts list box of the PCL Fonts dialog. The description is made up of the fonts face name and attributes such as point size, style, and weight.

Font File - Identifies the file name of the installed font as it appears on the hard disk (host or printer). The file name of a host installed font will include the path. Printer disk-installed fonts are identified by name only.

Name - The face name of the font (maximum of 16 characters)-If the font file contained a face name then this name is used by default at installation time. If the font file did not contain a face name, then the name is the one chosen at installation. This name appears in the Font Description field of this dialog, the Installed Fonts list box and status line of the PCL Fonts dialog, and in the fonts list box of your application. Editing this field effectively edits the face name field of the fonts PFM file.

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**Font ID** - This field contains the ID automatically generated and assigned to the font by the Fonts and Forms Installer during installation. Editing of this field should only be necessary to avoid or eliminate ID conflicts among fonts downloaded to printer RAM. If you select an ID that is already in use, a message will inform you that the ID is in use and cannot be used, and the ID will revert to the previous value. (Range 0 - 32767)

#### NOTE:

Automatically generated font IDs are in the range of 1000-1999 for fonts installed to the host and 3000-3999 for fonts installed to the printer disk.

When a font is installed the Fonts and Forms Installer determines which IDs are used by looking in the HOSTINFO.INI file (located in the dBase directory) for all IDs assigned to host installed fonts on your system and the Printer Information File (if one is selected) for all IDs assigned to printer disk installed fonts. It then selects the lowest numerical value in the range that is not used and assigns this as the default ID.

If a font is memory resident (as the result of a download performed on your system) and its ID changes, whether explicitly or as the result of an Update, the memory resident reference in the HOSTINFO.INI file will be removed and the font will no longer appear as memory resident.

#### NOTE:

In addition to explicitly selecting the Update button, automatic (and sometimes transparent) updates occur under the following conditions:

- When a Printer Information File is selected.
- Each time the Fonts and Forms Installer is entered when a Printer Information File is selected.
- When you attempt to download, edit, or delete a printer disk font and the local copy of the Printer Information File is out of date.

Memory resident - If checked, this indicates that the font was previously downloaded to printer RAM. However, it does not guarantee that the font is in printer RAM, as the printer's power may have been cycled, nor may it be used to make a font memory resident. It is only enabled if the box is checked. Unchecking this checkbox will remove the information from the Windows HOSTINFO.INI file indicating that this font is memory resident and the checkbox will become disabled.

This checkbox is intended to allow the user to remove the memory resident status of a font if they know or suspect that the font is no longer present in printer RAM.

**Family** - Allows selection of the family name of the font being edited. This selection may influence the accuracy of the Windows screen font substitution mechanism. Editing this field effectively edits the family field of the fonts PFM file.

Windows groups typefaces into five "families," based on the general appearance of the type. These families are called Modern, Swiss, Roman, Script and Decorative. The most common typefaces are categorized as Modern, Swiss, or Roman, depending on two characteristics.

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The first characteristic involves "stroke width" -- the width of the lines that make up the characters -- which can be constant or variable. Typefaces in the Modern family have constant stroke widths. Typefaces in the Swiss and Roman families have variable stroke widths. (Most typefaces with constant stroke widths are also of "fixed pitch," which means that all the characters in the font are the same width. Typefaces with variable stroke widths are generally of "variable pitch," which means that the characters have variable widths. However, it is the stroke width rather than the use of fixed or variable pitch that determines the family of a particular typeface.)

The second characteristic involves "serifs," which are small lines that finish off the character strokes. The Swiss family comprises "sans serif" typefaces (typefaces with no serifs); the Roman family comprises serif typefaces.

The Script family comprises typefaces that resemble cursive handwriting. The Decorative family includes typefaces of elaborate design (such as Old English). At one time, symbol fonts were considered to be in the Decorative family, but they are now generally identified as symbol fonts by a character-set attribute of the font -- the character set is Symbol rather than ANSI or OEM.

The following table summarizes the grouping of typefaces into families and shows the identifiers (defined in WINDOWS.H) that programs can use to specify the font family.

Font Family	Stroke	Usual Pitch	Serifs	Typical Typefaces
FF_MODERN	Fixed	Fixed		Courier, Elite, Pica
FF_SWISS	Variable	Variable	No	Helvetica, Avant Garde
FF_ROMAN	Variable	Variable	Yes	Times Roman, Palatino, New Century Schoolbook Cursive, Zapf Chancery, Old English
FF_SCRIPT				Cursive, Zapf Chancery, Old English
FF_DECORATIVE				Old English

WINDOWS.H also includes a sixth font-family identifier, FF\_DONTCARE, which a program can use when it wants to select a font but doesn't care which family it comes from.

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## PCL Fonts Install Dialog

Install PCL Fonts × Select font to install Directories: Close Available fonts: a:\\ ITCLubInGrph Db 12pt bold 🗁 a:\ \* ٠ ITCLubInGrph Db 16pt bold ITCLubInGrph Db 8pt bold ITCLubInGrphBkOb 12pt italic ITCLubInGrphBkOb 16pt italic ITCLubInGrphBkOb 8pt italic Help ITCLubInGrphDbOb 12pt italic Ψ. ITCLubInGrphDbOb 16pt italic ITCLubInGrphDbOb 8pt\_italic Park Avenue 12pt italic Drives: -Park Avenue 16pt italic 🖃 a: -Network .... Install font to Host directory O Name on Printer disk:

Select font to install - The Available Fonts list contains the names of all valid fonts residing in the currently specified directory. If a valid file font does not contain a face name for the font, the file name of the font is used and will appear in the Available Fonts list enclosed in parentheses. The user will be prompted to enter a face name if the user attempts to install a font whose name is enclosed in parentheses. If installing a font requires entering a face name, the face name entered will appear in the Installed Fonts list when the installation is complete.

The Install PCL Fonts dialog allows for the selection and installation of fonts.

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Install font to - Install Font To indicates the destination for the font installation. There are two possible destinations:

Host directory - This radio button is the default setting and indicates that the font selected in the Available Fonts list is to be installed on the host system.

Name on Printer disk - This radio button indicates that the font selected in the Available Fonts list is to be installed on the printer's hard disk with the name specified in this field. By default, the field contains the font's name as it appears in the Available Fonts list plus the font's file name. The Printer disk option is disabled unless you have the appropriate access rights *and* a Printer Information File is currently selected (maximum 16 characters).

Install - Performs the actual installation of the selected font. If the font selected for installation does not have a valid face name (e.g., it is enclosed in parentheses), the user will be prompted to enter a face name.

If installing to the host, the font file is copied to the location specified in the Host directory field. The user will be prompted if the host directory field is blank or contains a directory that does not exist. The Installed Fonts list in the PCL Fonts window will now show that this font is installed on the host.

If installing to printer disk, the font file is copied to the printer's hard disk and given the name specified in the Name on Printer disk field. The Installed Fonts list in the PCL Fonts window will now show that the font is installed on the printer's hard disk.

NOTE: This button is enabled only if a font is selected.

Only one font may be installed at a time.



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## **Missing Font Information Dialog**

This dialog is presented when attempting to install a font which has no face name. To complete the installation, a face name must be entered in the Name field of this dialog. The face name entered in this field, which may be anything, is stored in the PFM file created for this font during installation.

Missing Font I	nformation	×
This font does face name (16 the installation	s not have a face name. Please enter a S chars max) and select OK to complete h.	<u>Q</u> K <u>C</u> ancel
Description:	(B_LBLNB1.FNT) 8pt bold	Help
Font file:	C:\PCL FONT\B_LBLNB1.FNT	
<u>N</u> ame:		

### **PCL Macros Dialog**

The PCL Macros dialog includes basic tools for the installation and management of printer macros. In addition to displaying installed macros, it provides functions for downloading, editing, deleting, updating, and installing macros.

nstalled Macros:	
Spamero3 <book< th=""><th>Class</th></book<>	Class
Sqamero4 <host></host>	
	Download
	<u></u> dit
	Delete
	Update
	Install macros
	Configure
	Help

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The Installed Macros box lists the names and locations of all macros installed using the Fonts and Forms Installer. You may download, edit, or delete any macro in this list by selecting the entry and clicking on the appropriate button. The download, edit, and delete buttons will be disabled for printer disk macros unless you have the appropriate access rights.

Additional information about a particular macro will appear in a status line below the list box when that macro is selected.

The macros listed in this window will appear in the list of available Forms in the printer driver's Job Options folder.

Macro Status Line - This line displays additional information about the macro currently selected in the Installed Macros list. This information consists of the macro's name, the ID assigned by the Fonts and Forms Installer, the installed location (either host or printer disk), and the file name of the installed macro (host-installed macros will include a path). The macros name and ID may be modified by editing the macro.

**Download** - Copies the selected macro to print memory (RAM) and makes it permanent. Only host-installed macros may be downloaded to printer memory. Once downloaded, the selected macro will be denoted with the word 'memory' and the Memory resident checkbox in the Edit Installed Macro window will become enabled and checked.

#### NOTE:

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Macros that you download from your system appear as memory resident only on your system.

All macros have an identification number (ID) associated with them that is automatically generated by the Fonts and Forms Installer at the time of installation. In assigning IDs, the system will not introduce conflicts by assigning an ID that is already used by a host- installed macro on your system or a printer disk installed macro.

However, it is possible to install a macro on your system which has the same ID as a macro installed on another user's system. The Fonts and Forms Installer does not know which IDs are used by host-installed macros on other systems and therefore cannot prevent duplicates at installation time. This allows for the possibility of ID conflicts when multiple users download host-installed macros to RAM.

If you download a host macro that has the same ID as a host macro previously downloaded by another user, your macro will still be downloaded but it will overwrite the other user's macro. To avoid such conflicts, it is advised that your system administrator allocate a unique range of ID values for each user. Then, before downloading a host font or macro, edit it and change the Font ID to one of the IDs allocated to you.

Note that macros residing in printer memory are deleted when the printer's power is cycled. If you suspect a macro you downloaded is no longer in printer memory, you should edit it and uncheck the Memory resident checkbox. The overlay will not occur if Memory resident is checked and the macro is not in RAM.

```
NOTE:
The Download button will be disabled for printer disk macros.
```

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Edit - Enters the Edit Installed Macro dialog.

NOTE:

The Edit button will be disabled for printer disk macros unless you have the appropriate access rights.

**Delete** - Removes the installed item from the Installed list. The printer driver, Fonts and Forms Installer, and your applications will no longer be aware of deleted items. In addition to deleting the reference, Delete provides the option to delete the actual macro file from its installed location. Answering YES to the prompt will delete the reference and the file; NO will delete only the reference; and CANCEL will not delete anything.

NOTE:

The Delete button will be disabled for printer disk macros unless you have the appropriate access rights.

Update - Causes your local system to be updated with information from the Printer Information File. An update is performed automatically each time you enter the Fonts and Forms Installer, and when a Printer Information File is selected via the Configure button. However, while in the Fonts and Forms Installer, you will not be aware of any fonts or macros installed on the printer disk by another user unless you perform an update by pressing the Update button. The Installed Fonts (or Installed Macros) list box will reflect any changes resulting from the update.

The Update button is only enabled if a Printer Information File has been selected via the Configure button in either the PCL Fonts dialog or the PCL Macros dialog.

Update is only necessary in a network environment.

#### NOTE:

In addition to explicitly selecting the Update button, automatic (and sometimes transparent) updates occur under the following conditions:

- When a Printer Information File is selected.
- Each time the Fonts and Forms Installer is entered when a Printer Information File is selected.
- When you attempt to download, edit, or delete a printer disk font and the local copy of the Printer Information File is out of date.

Install macros - Enters the Install PCL Macros dialog.

Configure - Enters the Configure dialog. See Configure Dialog on page 3-18.



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## Edit Installed Macro Dialog

The Edit Installed Macro window allows modification of some basic attributes of installed macros.

Edit Installed I	Macro	×
Description:	Sgamcro4	<u>0</u> K
Macro file:	32\Mercury\D3\Macros\PCL\Sqamcro4	Cancel
<u>N</u> ame:	Sqamcro4	<u>H</u> elp
Macro <u>I</u> D:	1001	
Memory reside	ent 🗖	

**Description** - Identifies the macro as it is described in the Installed Macro list box of the PCL Macros dialog. The description is made up of the macro's name as chosen during installation.

Macro file - The file name of the macro as it appears on the disk where it was installed.

Name - The name of the macro as chosen during installation. Unless the user selects another name, the file name of the macro is used by default at installation time. This name appears in the Macro Description field of this dialog, the Installed Macros list box and status line of the PCL Macros dialog, and in the Overlay Macros list in the driver's Options dialog. (Maximum length for a Macro Name is 16 characters)

Macro ID - This field contains the ID automatically generated and assigned to the macro by the Fonts and Forms Installer during installation. Editing of this field should only be necessary to avoid or eliminate ID conflicts among macros downloaded to printer RAM. If you select an ID that is already in use, a message will inform you that the ID is in use and may not be used, and the ID will revert to the previous value (range 0 - 32767).

### NOTE:

Automatically generated macro IDs are in the range of 1000-1999 for macros installed to the host and 3000-3999 for macros installed to the printer disk.

When a macro is installed the Fonts and Forms Installer determines which IDs are used by looking in the Windows HOSTINFO.INI file (located in the dBase directory) for all IDs assigned to host-installed macros on your system and the Printer Information File (if one is selected) for all IDs assigned to printer disk installed macros. It then selects the lowest numerical value in the range that is not used and assigns this as the default ID.

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If a macro is memory resident (as the result of a download performed on your system) and its ID changes, whether explicitly or as the result of an Update, the memory resident reference in the HOSTINFO.INI file will be removed and the macro will no longer appear as memory resident.

#### NOTE:

In addition to explicitly selecting the Update button, automatic (and sometimes transparent) updates occur under the following conditions:

- When a Printer Information File is selected.
- Each time the Fonts and Forms Installer is entered when a Printer Information File is selected.
- When you attempt to download, edit, or delete a printer disk font and the local copy of the Printer Information File is out of date.

Memory resident - If checked, this indicates that the macro was previously downloaded to printer RAM. However, it does not guarantee that the macro is in printer RAM, as the printer's power may have been cycled, nor may it be used to make a macro memory resident. It is only enabled if the box is checked. Unchecking this checkbox will remove the information from the HOSTINFO.INI file that was designating the macro as memory resident, and the checkbox will become disabled.

This checkbox is intended to allow the user to remove the memory resident status of a macro if the user knows or suspects that the macro is no longer present in printer RAM.

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No.: RG155011a

### Install PCL Macros Dialog

The Install PCL Macros dialog allows for the selection and installation of macros.

Install PCL Macros			×
Select macro to install	Directories:		Close
<u>Available macros:</u>	- a:\		<u>_</u> 1086
SQAMCRO3 Sqamcro4	i a:\	×	Install
		~	Help
	Drives:	•	Network
Install macro to			
Host directory			
Name on <u>Printer disk</u> : SQAM	ICR03		

Select macro to install - The Available Macros list contains the file names of the all files residing in the currently specified directory. By default the macro's name is its file name. The user will be prompted to accept or change the macro name when installing a macro.

#### NOTE:

It is the user's responsibility to make sure the file selected for installation contains a valid PCL macro definition. The Fonts and Forms Installer will accept any file and assume it contains a macro definition.

Install macro to - Install Macro To indicates the destination for the macro installation (Maximum 16 characters). There are two possible destinations:

Host directory - This radio button is the default setting and indicates that the macro selected in the Available Macros list is to be installed on the host system.

Name on Printer disk - This radio button indicates that the macro selected in the Available Macros list is to be installed on the printer's hard disk with the name specified in this field. By default this field contains the macro's name as it appears in the Available Macros list. The Printer disk option is disabled unless you have the appropriate access rights and a Printer Information File is currently selected.

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---------------	-----------------	---------------

Install - Performs the actual installation of the selected macro. The user will be prompted to accept or change the macro name. If installing to the host, the macro file is copied to the location specified in the Host directory field. The user will be prompted if the host directory field is blank or contains a directory that does not exist.

The Installed Macros list in the PCL Macros window now shows that this macro is installed on the host. If installing to printer disk, the macro file is copied to the printer's hard disk and given the name specified in the Name on Printer disk field. The Installed Macros list in the PCL Macros window will now show that the macro is installed on the printer's hard disk.

NOTE:	
This button is enabled only if a file is selected.	

Only one macro may be installed at a time.

Network - Opens the standard Connect Network Drive dialog if the system is connected to a network.

### **Macro Information Dialog**

This dialog is presented when installing a macro to allow modification of the default name given to the macro. The user may change the name in the Name field or choose to accept the default name presented. Selecting OK will complete the installation.

Macro Inform	ation	x
The macro will You may enter if you wish. Cliv	be installed with the following name. a more descriptive name (16 chars max) ck DK to complete the installation.	<u>D</u> K Cancel
Description:	Sqamcro4	Help
Macro file:	A:\Sqamcro4	
<u>N</u> ame:	Sgamcro4	

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### **Configure Dialog**

The Configure dialog allows selection of a Printer Information File that describes which fonts and/or macros are installed on the printer.

Configure		×
Printer Information File		<u>0</u> K
\\miami\oneweek\t70.p	<u>C</u> ancel	
None	Browse	<u>H</u> elp
		About

**Printer Information File** - The Printer Information File contains information about fonts and macros installed on the printer's hard disk. This file must be created by your system administrator and is intended to reside on a network drive that is accessible to all users.

You may select a Printer Information File via the Configure button in either the PCL Fonts or PCL Macros dialog. Each time anyone installs a font or macro on the printer's hard disk, information about that font or macro is recorded in the currently selected Printer Information File.

When a user selects a Printer Information File or an update occurs, this file is copied to the user's Windows directory (and given the extension .LOC). This local copy of the Printer Information File is maintained to improve performance.

Upon selection of a Printer Information File, the Installed Fonts list (or Installed Macros list) will automatically be updated to reflect any fonts (or macros) installed on the printer's hard disk.

Contact your system administrator for the name and location of this file.

This field and the Browse button are only enabled if the None checkbox is unchecked.

#### NOTE:

Universal Naming Convention (UNC) names should be used, not specific drive letters as these may change. UNC example: \\fileserver\public\myfile.

None - If checked, this indicates that no Printer Information File is specified. With no Printer Information File selected, you may not install fonts or macros on the printer's hard disk, and you will not see any fonts or macros that are installed on the printer's hard disk.

Checking this box clears the Printer Information File field above and disables the Browse button.

Browse - Opens the standard Browse dialog.

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Model:EMP156			Dat	e: 26-Jun-06	No.: RG155012
Subject: VPT Configuration and Installation Revision				Prepared by: Y.M	linakawa
From: 2nd Tech. Support Sec. Service Support Dept					
Classification:	Troubleshooting Part informat		tion Actior	n required	
	Mechanical     Electrical		al	🖂 Servio	ce manual revision
	Paper path Transm		it/rec	eive 🗌 Retro	fit information
	Other ( )				

The VPT Configuration and Installation Manual was changed as follows.

### 1. Delete "Network download" from the following:

### Pg.1-2

RICOH

**Network download** For special circumstances, the printer can be configured to download the VPT Network Printer's operational software. This applies only when the optional NIC card is installed.

### 2. Add "lp" to the following:

#### Pg.1-3

**Ip** uses all the factory default settings for the Auto Select emulation with emulation sensing enabled. This Virtual Printer is enabled for TCP/IP, with the TCP port set to 9100. It is also accessible from LPR/LPD using the queue name "Ip".

3. **Replace** the first word in the following paragraph with "text":

### Pg.1-3

**text** uses all the factory default settings for the Auto Select emulation with emulation sensing enabled. This Virtual Printer is enabled for TCP/IP, with the TCP port set to 3100. It is also accessible from LPR/LPD using the queue name "text".

### 4. Delete the NOTE statement.

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No.: RG155012

5. Replace the following illustrations:

Printer Display	Enhanced Menchrone Publisher
Manage Service	
• Status General Tray Paper Output Consumption	Update
Errors	Printer
Usage Notwork	Name: EMP-156
Reports	Location:
Revisions	Uptime: 0.18 Hours
System	Service Contact
Configuration	Name:
	Phone Number:
	Fax Number:
	E-mail:

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Printer Display			
Ready	System - Virtual Printer		
	c	<u>Default</u>	Non-Virtual Printer Input
,	С	<u>lp</u>	TCP Port = 9100
Managa	0	<u>text</u>	TCP Port = 3100
Ivianage	С	<u>vp-pcl</u>	TCP Port = 3101
Service	0	postscript	TCP Port = 3102
	С	ascii_portrait	TCP Port = 3104
	0	ascii_landscape	TCP Port = 3105
Status	C	lp_portrait	TCP Port = 3106
System	0	lp_landscape	TCP Port = 3107
General Trav	С	pdf	TCP Port = 3109
Paper Output	0	tiff	TCP Port = 3110
Accounting	С	pclxl	TCP Port = 3112
Jobs Serial No.	0	prt2file	TCP Port = 7101
• Configuration	С	newvpt07	TCP Port = 3201
	o	PSA00112E	TCP Port = N/A
	С	PSN00112E	TCP Port = N/A
		Configure	Delete New
		'Delete' o	peration is ignored for Default channel.
	<b>'New'</b> button will create a new channel.		

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Printer Display		
Ready		System - Virtual Printer
	General	Paper Handling PCL NetWare
<u>-</u>	AppleTalk	Options
🕖 Manage		
Service		Channel Name: newpt07
Service		General
	Channel Name	newwpt07
	Emulation	PCL
Status     System     General     Tray     Paper Output	Protocol	
		LPD Banner Page
Virtual Printer Accounting	LPD Banner Page	Disabled 💌
Jobs		Accounting Slip Sheet
Configuration	Accounting Slip Sheet	Disabled 💌
		(*)Configuration of the file server is required (**)Reset is required to activate modification Submit

Printer Display				
Ready	System - Virtual Printer			
	General	Paper Handling	PCL	NetWare
	AppleTalk	Options		
🕖 Manage				
		Channel	Name: newvpt07	
Service		Paper	Handling	
	Paper Source		Auto Select 💌	
	Paper Size		A3 SEF 💽	
Svstem	Paper Type		Plain 💌	
General	Paper Output		Sample Tray 💌	
Tray Paper Output Virtual Printer Accounting	Copies(1-999)		1	
	Collate		Enabled 💌	
Jobs Serial No.	Job Offset		Disabled 💌	
Configuration	Duplex		Disabled 💌	
	Binding		Short Edge	
	Edge-to-Edge		Disabled 💌	
		Su	bmit	

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•

•

		System Vintual Drinton	
dy		System - Virtual Printer	
	General	Paper Handling PCL NetWare	
	AppleTalk	Options	
🕖 Manage			
Sorrico		Channel Name: newvpt07	
Beivice		PCL	
	Page Orientation	Portrait	
	Page Length (5 - 127)	60	
	Line Termination	CR->CR; LF->LF; FF->FF	
ral	Line Wrap	○ On ⓒ Off	
-		Source: Internal 💌	
er Output tual Printer		Number: 23	
ounting	Font	Symbol Set: PC-8	
d No.		Height (4 - 999.75): 12 points	
iration		Pitch (0.44 - 99.99): 10 cpi	
		с ў <u>р</u> .	
		Submit	
rinter Display			
	System - Virtual Printer		
	General	Paner Handling PostScrint NetWare	
	General	rater manazing rosiscript P Metivare	
	Apple Talk	Options	

Samiaa	Channel Nam	e: newvpt07
Service	Net	Vare
	• Queue Server	
	NDS Tree	
tatus	NDS Context	
ystem	File Servers	Configure Bindery File Servers
General Tray Paper Output Virtual Printer	Configure Service Bindery File Servers	C Remove
Accounting	C Remote Printer: Print Server is required to se	et this.
Scrial No.	Printer Number (0 - 255)	0
onfiguration	Print Server	

RI	CO	Η

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Printer Display			
Ready	System - Virtual Printer		
	General	Paper Handling PostScript NetWare	
	• AppleTalk	Options	
🕖 Manage			
		Channel Name: newwpt07	
Service		AppleTalk	
	AppleTalk Type	LaserWriter	
Status		Submit	

Printer Display	
Ready	System - Virtual Printer
-	General Paper Handling PostScript NetWare
1	AppleTalk Options
🕖 Manage	
A Burning	Channel Name: newwpt07
Service	Options
	Filter AppleTalk Binary
	🗖 Raw TCP port job is queued if printer is busy
Status     System	Submit

## Technical Bulletin

#### **PAGE: 1/6**

Model: EMP156			Date: 26-Jun-06		No.: RG155013
Subject: Engine Maintenance Manual Revision				Prepared by: Y	Minakawa
From: 2nd Tech.	Support Sec. Service Support				
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>		ormat al it/rec	ion ☐ Acti ⊠ Sen eive ☐ Retr	on required vice manual revision ofit information

The Engine Maintenance Manual was changed as follows.

1. Change the numbers in the "Note" and "Maint. Ref" columns in the following tables

### Pg.4-4 Table 4-3 PM Parts List (3)

	9600 KPics	19200 KPics	28800 KPics	38400 KPics	Expected	Note
Pick Belt (Small Hopper)	R	R	R	R		7.6.1.54
Pick Belt (Large Hopper)	R	R	R	R		7.6.1.57

## Technical Bulletin

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Date: 26-Jun-06

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### Table 4-12. Scheduled inspection items and frequencies

No.	Items	Frequency	Customer Engineer's Task	Operator's Task	Work Time( min.)	Note	Maint. Ref.
5.	Cleaning					(yes):	
-	Drum Wrap Sensor	2,400ki	Yes	(Yes)	3	Qualified operator by	4.4.1.5
-	Charger unit and Wire	800ki	Yes		7	checking	4.4.1.1
-	Paper Hopper / Tray and	Daily		Yes	1		4.4.3
	Stacker Area	Per visit	Yes		1		4.4.4 4.4.5
-	Toner Bottle Joint Area	Per supplying toner		Yes	1		
		Per visit	Yes		1		
-	Transfer Corona Unit and Wire	800ki	Yes		5	Ki: kilo-Images	4.4.1.4
-	Discharging Corona unit	Weekly		Yes	1		4.4.4.0
	and Wire	800ki	Yes		4		4.4.1.3
	Erase Wire Assembly and Erase Corotron Wire	800ki	Yes		4		4.4.1.2
-	LED Eraser	2,400ki	Yes		1		4.4.1.9
	Machine Inside (Middle Stay etc)	2,400ki	Yes		8		4.4.1.10
-	CCD Sensor	<sup>*1</sup> 800ki	Yes	(Yes)	1	<sup>*1</sup> Depend on Paper Quality	4.4.2.5
-	Developer unit	2,400ki	Yes		3		4.4.1.7
	BR Separator in Fuser	Dally		Yes	1		4421
	unit	Per visit	Yes		1		4.4.2.1
	Toner Collector Bottle	Per Bottle replacement		Yes	1		
	Area	Per visit	Yes		1		
	Flicker Bar in Cleaner unit	2,400ki	Yes		5		4.4.1.6
-	Inverter valve piece in	Daily		Yes	5		4.4.2.4
	Inverter Unit	Per visit	Yes		5		4.4.2.4
	Pressure Roller in Inverter Unit	<sup>*1</sup> 800 ki	Yes		5		4.4.2.3
-	Surface voltage Sensor	1,200ki or M1	Yes		3	M1: every month	4.4.1.10
-	Temperature Sensor	2,400ki	Yes		3		4.4.2.2
-	Pick Belt / Pick Belt Position Sensor	800ki	Yes		15		4.4.2.7
	Feed Roller in Inverter unit	800ki	Yes		5		4.4.2.6
	Fuser in Paper Guide / Fuser out Paper Guide	Daily		Yes	5	*21	4.4.2.8
	Paper Guide in	Daily		*2 <sub>Yes</sub>	1	a daily operation and when change to	4420
	Discharger Unit	Per visit	Yes		1	the paper width too large	4.4. <b>2</b> .9

## Technical Bulletin

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No.	Items	Frequency	Customer Engineer's Task	Operator's Task	Work Time (min.)	Note	Maint. Ref.
6.	Replacement						
	OPC Roll	4,950kc	Yes		10	kc: kilo drum rotation	7.2.2.2
	Heat Roll and Collar	2,400ki	Yes		<sup>*3</sup> 15 (60)	<sup>*3</sup> Refer to the Note2 ki: kilo Images	7.3.4.6
	Backup Roll	2,400ki	Yes		<sup>*4</sup> 2 (20)	* <sup>4</sup> Refer to the Note3	7.3.4.3
	Fuser Cleaning Web	<sup>*5</sup> 600ki	Yes	Yes	1	<sup>*5</sup> Refer to the Note4	7.3.4.19
	Cleaner Brush	2,500kc	Yes		3		7.2.5.1
	Fine Filter	*6 (2,500kc) When replaceme nt alarm is displayed	Yes	Yes		* <sup>6</sup> Depend on printing pattern.	7.6.1.1
	Transfer Belt	1, 600 ki	Yes		10		7.2.6.2
	Charger Wire and Cleaning Pieces Charger Wire x 2 Wire Cleaner Assembly A X 2 Wire Cleaner Assembly B X 2 Grid Cleaner Assembly	3,000kc	Yes		*7 <sub>1</sub> (30)	* <sup>7</sup> Refer to the Note5	7.2.1.3 7.2.1.4
	Charger Wire Holder (F) / (R)	9,000kc	Yes				7.2.1.2 7.2.1.3
	Charger Grid	6,000kc	Yes				7.2.1.2
	Transfer Wire and Cleaning Piece Corotron Wire x 2 TR Cleaner Assembly x 1 Wire Cleaner Assembly x 1	6,000kc	Yes		<sup>*8</sup> 3 (10)	*8Refer to the Note6	7.2.6.8 7.2.6.9 7.2.6.10
	Corotron Case (F) / (R)	1,8000kc	Yes		(5)	* <sup>10</sup> To replace at the	7.2.6.15
	Sleeve Bearing × 4	1,9200ki	Yes		*10 5	same time as the Transfer Belt	7.2.6.14
	Discharge Wire and Cleaning Piece Corotron Wire x 1 DC Cleaner Assembly x 1	6,000kc	Yes		*11 <sub>1</sub> (5)	*12Refer to the Note9	7.2.1.8 7.2.1.9
	Discharger Case Assembly	1,8000kc	Yes		*12 (5)		

Table 4-13. Scheduled replacement items and frequencies

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ltems	Frequency	Customer Engineer's Task	Operator's Task	Work Time( min.)	Note	Maint. Ref.
Erase Corotron Wire	6,000kc	Yes		* <sup>13</sup> 1 (5)	*13 Refer to the Note10	7.2.1.6
TC Wire Holder (L) TC Wire Holder (R)	6,000kc	Yes		*14 (5)	<sup>^14</sup> Refer to the Note 11	7.2.1.6
Pick Belt (1000 / 2500 Sheet Hopper and High Capacity Feeder (3000 / 3000 (option) each)	9,600kpic )	Yes		15	kpic: kilo number of paper picks	7.6.1.547. 6.1.577.8. 2.117.8.2. 14
Air Filter (Engine and High Capacity Feede	r) 3,200ki	Yes		7		7.6.1.717. 8.2.18
Regist Drive Roller Assembly	17,600ki	Yes		25		7.3.3.25
Timing Driven Roller	17,600ki	Yes		15	*	7.3.3.35
Ozone Filter x 2	6,000kc or M4	Yes		3	*	7.5.1.1
Brake Pad	9,600ki	Yes		10	*	7.2.2.6
Idler Roller Assembly (ST1 U/L ST2 U/L)	y x 4 9,600ki	Yes		20		7.7.4.10
Heater Lamp Assemb	oly 19,200ki	Yes		* <sup>15</sup> 5 (15)	*	7.3.4.4
BR Separator x 3	4,800ki	Yes		<sup>*15</sup> 15 (30)	<sup>*15</sup> Refer to the Note3	7.3.4.12
Earth Spring Assembly (5) x 3 (Transfer)	4,800ki	Yes		*169	*16 To replace at	7.2.6.4
Carbon Electrode (Transfer)	7,200ki	Yes		5	with Transfer Belt	7.2.6.3

 Table 4-13. Scheduled replacement items and frequencies

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2. Add the following procedure after chapter 4.4.2.8

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### 4.4.2.9. Cleaning of the Paper Guide (Discharger Assembly)

### CAUTION:

Be sure to turn OFF the MAIN AC POWER before you do any maintenance.

#### Applicable jigs and tools: Gauze

#### [Disassembling Procedures]

- 1. Pull out the Fuser Assembly (Refer to item 7.3.4.1)
- 2. Clean the paper guide in the Discharger Assembly with gauze. Important: Clean the area shown by the dotted line in the illustration below.
- 3. Do the cleaning procedures in the reverse order.





DISCHARGER ASSEMBLY

Figure 4-. Cleaning of the paper guide in Discharger Assembly

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Pg.4-469 Phenomenon 18

Phenomenon 18 Streak (Horizontal)(Pap	per Leading Edge)	
Cause	Remedy	Maintenance Ref.+Page
<ol> <li>The paper curls too much</li> <li>There is toner on the paper's leading edge</li> </ol>	<ol> <li>Use paper that conforms to the Consumable Specifications.</li> <li>Follow the correct paper storage requirements.</li> <li>Clean the Paper Transfer Path and the Paper Transfer Roller.</li> </ol>	
2. There is a lot of toner on the OPC roll (the Charger Assembly is stained)	<ol> <li>Clean the Shield and Grid.</li> <li>Clean the Erase Wire Assembly or the LED Eraser.</li> <li>Clean the Surface Voltage Sensor.</li> <li>Wind up the OPC Roll.</li> <li>Replace the Developer mix.</li> <li>Replace the Toner Control Sensor.</li> </ol>	4.4.1.1, 4-19 4.4.1.2, 4-20 4.4.1.9, 4-29 4.4.1.10, 4-30 Refer to the Controller Maintenance Manual. 7.2.4.29, 7-134 7.2.4.21, 7-125
	Clean the paper guide of the Discharger Unit.	4.4.2.9, 4-34

### Reissued: 31-Jul-06

Model: EMP156	Date: 12-Jun-06	No.: RG155014	
RTB Reissue			

Subject: Firmware Release History (Controller)				Prepared by: N. Sakamoto		
From: 2nd Tech.	Support Sec. Service Support I	Dept				
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part information</li> <li>Electrical</li> <li>Transmit/reconstruction</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>		

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

Version	Symptom Corrected
em201	<ul> <li>Part of the printed image is shifted along the main scan direction. Note: This only happens on the RoHS compliant machine.</li> </ul>
em200	<ul> <li>The PostScript version displayed is incorrect. Incorrect: 3011 Correct: 3015</li> <li>Some minor symptoms with PostScript printing were corrected.</li> </ul>
	Other changes:
	<ul> <li>Supports the new RoHS compliant hardware.</li> </ul>
em114	<ul> <li>German and French languages were added. Japanese language was deleted.</li> <li>Paper Color function is supported with PostScript.</li> <li>Considers the Media Color when processing the Media Matching.</li> <li>"Printer - Paper Source - Paper Color" menu was added to the OCP.</li> <li>"Paper Color" menu was added to "Manage - System - Tray" and "Manage - System - Virtual Printer - each VPT - PostScript" of the Web Utility.</li> <li>String of the Color was added to "prtInputMediaColor" of the MIB.</li> <li>"ocpCustomMediaColor" was added in the MIB.</li> </ul>



### Reissued: 31-Jul-06

Model: EN	IP156	Date: 12-Jun-06	No.: RG155014				
Version	Sympton	n Corrected					
	<ul> <li>Tracing Paper is supported as a P</li> <li>The "Accounting Slip Sheet" functi</li> <li>"Accounting Slip Sheet: Enable "Manage - System - Virtual Pri Web Utility (factory default: Dist</li> </ul>	aper Type. on was added. e/Disable" option was a nter - each VPT - Gen sabled).	added to the eral" menu of the				
	<ul> <li>The Image Shift function with PJL commands is supported.</li> <li>TBCP mode is supported with PostScript.</li> <li>Letter and A4 can be selected with PCL and PJL, regardless of sheet orientation.</li> <li>"Auto Feed Orientation" option was added to "Manage - System - General - Options" of the Web Utility.</li> </ul>						
	<ul> <li>The LPD Banner Page function was added.</li> <li>"LPD Banner Page: Enable/Disable" option was added to: "Mana System - Virtual Printer" (factory default: Disabled).</li> <li>Improved the switching time between the Standard Input Tray and Additional HCF.</li> <li>The "Printer - Paper Source - HCF Tray Control" menu was added</li> </ul>						
	<ul> <li>the OCP.</li> <li>The "HCF Tray Control" Menu Web Utility.</li> <li>A timeout (time limit) was added fo</li> <li>The configuration Report function</li> <li>The "configuration" option was OCP for user adjustable parar</li> <li>The "Config Print" option was menu of the OCP for various e</li> </ul>	was added to "System r LPR, RawTCP and II was added. added to the "Report" neters. added to the "Service engine parameters.	ו - Tray" in the PP. ' menu of the - Configuration"				
	<ul> <li>Added new Default Virtual Printer "lp" to port 9100.</li> <li>Changed Default Virtual Printer "TEXT" to "text" for port 3100.</li> <li>Changed engine parts name "Cyclone Filter" to "Fine Filter" on the O Web / MIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer functionality.</li> <li>Corrected the page image position for PostScript.</li> <li>Corrected the EC#04 error when using the HCF2 Upper Tray.</li> <li>Corrected the "2 on 4 off" test print pattern.</li> <li>Added the Engine FPGA version to the Status Page.</li> <li>Corrected the PJL USTATUS command response.</li> </ul>		3100. er" on the OCP / Tray. used (10 <b>→ 11</b> ).				

## Technical Bulletin

### PAGE: 1/2

Model: EMP156	Dat	Date: 8-Aug-06		No.: RG155015		
Subject: Engine	Prepared	by: Y.M	linakawa			
From: 2nd Tech §						
Classification:	Troubleshooting Mechanical	Part inf	ormat al	tion [	☐ Action	required e manual revision
	Paper path Product Safety	☐ Transm ☐ Other (	it/rec	eive [ )	Retrof	fit information

The Engine Maintenance Manual was changed as follows:

• **Replace** the following procedure.

Pg.7-157 SECTION 7.2.6.12: See the next page of this RTB

## Technical Bulletin

Model: EMP156

Date: 8-Aug-06

No.: RG155015

7.2.6.12. Removal of the Sensor Assembly

### CAUTION:

Be sure to turn the main AC power OFF before you start this procedure.

### Jigs and tools: Phillips (+) screwdriver

### [Disassembly Procedure]

- 1. Remove the Corotron (W) Assembly (Refer to item7.2.6.7 on pg. 7-151).
- 2. Remove the Sensor Holder.
- 3. Remove the Sensor Assembly (1 screw).



Figure 7-181. Removal of the Sensor Assembly

### [Assembly Procedure]

1. Do the "Disassembly Procedure" in the reverse order.

#### Important:

- Insert the pin of the Sensor Assembly into the hole in the Corotron Case [F].
- Before you reattach the Sensor Holder, set the Sensor Cable as shown in the illustration above. This is to ensure the Sensor Cable is not damaged when the Sensor Holder is reattached.
- Make sure the Screw Shaft operates when the power is turned ON and also stops when the power is turned OFF.

#### PAGE: 1/19

Model: EMP156				Date: 8-Aug-06		No.: RG155016	
Subject: Controller Maintenance Manual Revision					d by: Y.M	linakawa	
From: 2nd Tech S							
Classification:	issification: Troubleshooting Dart informa		orma	tion	Action	n required	
	Mechanical	Electrica	al		Servic	e manual revision	
	Paper path	🗌 Transm	it/rec	eive	Retrof	fit information	
	Product Safety	Other (		)			

Apply the following deletions or changes or additions to your Controller Maintenance Manuals.

1. Replace the following.

Pg.2-2

RICOH

## How the Controller Operates

The controller enables users to access the printer through the network and use it to print files using advanced spooling and job control functions. Users can print to the controller from a local networked PC running TCP/IP. Files are received by the printer in a Raster Image Process (RIP) form allowing for more efficient printing.

The controller custom-designed boards and system software are responsible for efficient image processing and printing controls. The main functions of controller components and software are described below.

The controller uses a motherboard to process image data for printing images. The controller board includes a Power PC 750FX 800MHz microprocessor.

The DIMM (dual in-line memory modules) on the controller board hold image data during printing. The controller board is configured with 256MB or 512MB of memory.

A diagram of the primary controller functions is shown on Figure 2-2 on page 2-3 and Figure 2-3 on page 2-4.

2. Change the title of Figure 2-2.

Figure 2-2. Controller Functional Diagram(CL121 Board)

RICOH	Technical Bulletin	PAGE: 2/19
Model: EMP156	Date: 8-Aug	-06 No.: RG155016

3. Add the following illustration after page 2-3.



Figure 2-3. Controller Functional Diagram (CL146 Board)

RICOH	Technical B	PAGE: 3/19	
Model: EMP156		Date: 8-Aug-06	No.: RG155016

4. **Replace** the following.

Pg.3-5

### Using the + / - Change Button Menu

The image below is a sample of a menu with a + / - change button. It is used to increase and decrease the OCP brightness and contrast. The current value is displayed to the right of the icon.



Figure 3-4. Using the +/- Change Button Menu

To increase or decrease the value,

 Touch the + or - to adjust brightness or contrast. The numeric value and the display will change immediately.



Touch the Enter/Accept button to activate setting.

NOTE:

The setting will be ignored if the Enter/Accept button is not touched, or if the Previous Menu button is touched prior to touching Enter/Accept.

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Model: EMP156	Date: 8-Aug-06	No.: RG155016

Pg.3-6

### Using the Enable/Disable Change Button Menu

The image below is a sample of a menu with an Enable/Disable toggle. It is used to turn an option on or off.



### Figure 3-5. Using the Enable/Disable Change Button Menu

- Touch the Option Button to toggle between enable and disable. The current setting appears to the right.
- 2. When you are finished, touch the Previous Menu button.

#### NOTE:

The Enter/Accept button is not used for Enable/Disable options. The setting is activated immediately.



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Date: 8-Aug-06

No.: RG155016

### 5. Change the following tables.

Pg.3-11

### Table 3-2. Factory Default

		Factory Default Value	
Printer	Paper	Default	Auto Select
	Source	Paper Size (Common in all Trays)	Folio (Note2)
		Paper Type (Common in all Trays)	Plain
		Paper Color (Common in all Trays)	White
		Paper Weight (Common in all Trays)	20 lb. bond
		HV Adjust	0
		Table Adjust (Common in all Trays)	Normal (Note1)
		Paper Moisture (Common in all Trays)	Normal (Note1)
		HCF Tray Control	Normal Pick Mode (Note 1)
	Paper	Default Output	Container 1 Lower
	Output	Stacking Level (Common in all Trays)	100%
	Options	Wait Timeout	40 second
		LPD Queuing	Disable
		Duplex-Always	Disable
		Print Density	Middle (Note1)
		Auto Proof Sample	0
	PostScript	Print Errors	Enable
		Best Fit	Enable
		Job Timeout	0 second
		Halftone Density (Note3)	Medium
	PCL	Wide A4	Disable
		Requested Tray	Exclusively



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### Pg.3-12

			Parameter		Factory Default Value	
Setup	OCP	Brightness			10	
		Contrast			10	
		Buzzer Volume			3	
	Service	Password	System		(None) (Note1)	
			Service	Service		
		Configuration	OPC Surface V	/olt	Enable (Note1)	
			OCP Mode	User Menu	Disable (Note1)	
				Auto Winding	Enable (Note1)	
			Tray Adjust	Side Nozzle (Common in all Trays)	AutoSelect (Note1)	
				Solenoid (Common in all Trays)	AutoSelect (Note1)	
			Stacker Adjust	Job Offset (Common in all Trays)	Enable (Note1)	
				Front Jogger (Common in all Trays)	0 (Note1)	
				Rear Jogger (Common in all Trays)	0 (Note1)	
				Stopper (Common in all Trays)	0 (Note1)	
				Offset (Common in all Trays)	0 (Note1)	
			Wind. Fuser W	Wind. Fuser Web		
			Heat Roll Tmp		Normal (Note1)	
			Transfer Currer	Normal (Note1)		
			Temp/Humid C	Enable (Note1)		
			Thickness Setu	Normal (Note1)		
		Halftone Selection	Halftone Selection			
	System	Exit Jam Recover	Enable			
		Network (AUX)	IP Address		192.0.0.1	
			Subnet Mask	0.0.0.0		
			Gateway Addre	0.0.0.0		
			HTTP Port	80		
		Calendar	Time Zone	GMT		
			Date		(Date) (Note1)	
			Time		(Time) (Note1)	
		Country Code	•		1 (Note1)	
		Energy Save Mod	Energy Save Mode			
		Energy Save Time	e		15	
		Password			(None) (Note1)	
		Auto Online			Enable	
		Emulation			Auto Select	
		Public R/W			Disable	
		Auto Backup Time	;		1:00	
		Output Cascade	Cascade Priori	ty	Lower to Upper	
			Cascade on CS	S Open	Stop	
	Language	9	English			

Note1: This parameter does not change to the factory default value when the Factory Default menu is performed. Model: EMP156

Date: 8-Aug-06

6. **Replace** the following.

Pg.4-9

ise/Off-Line	Service - PR Par	rts		
ber Out Iray I	Consumable	Current	Limit	Status
	TRANSFER WIRE & CLEANING PIECES [kc]	922	6000	0
<i>M</i> anage	COROTORON CASE(F)/(R) [kc]	846	18000	0
	CHARGER WIRE & CLEANING PIECES [kc]	903	3000	0
🕖 Service	CHARGER GRID [kc]	5013	6000	0
	CHARGER WIRE HOLDER F/R [kc]	922	9000	0
	DISCHARGER WIRE & CLEANING PIECES [kc]	922	6000	0
	ERASE COROTRON WIRE [kc]	922	6000	0
umables	TC WIRE HOLDER (L)/(R)ASSEMBLY [kc]	922	6000	0
arτs Counter	OZONE FILTER(E) [kc]	934	6000	0
nentation Config	BR SEPARATOR [ki]	489	4800	0
Count	STD HP LOWER PICK BELT [kpic]	197	9600	0
	STD HP UPPER PICK BELT [kpic]	44	9600	0
	AHP LOWER PICK BELT [kpic]	16	9600	0
	AHP UPPER PICK BELT [kpic]	11	9600	0
	AHP2 LOWER PICK BELT [kpic]	50	9600	0
	AHP2 UPPER PICK BELT [kpic]	27	9600	0
	STI LOWER IDLER ROLLER ASSEMBLY [ki]	9	9600	0
	STI UPPER IDLER ROLLER ASSEMBLY [ki]	4	9600	0
	ST2 LOWER IDLER ROLLER ASSEMBLY [ki]	1	9600	0
	ST2 UPPER IDLER ROLLER ASSEMBLY [ki]	0	9600	0
	AIR FILTER [ki]	268	3200	0
	AIR FILTER(FOR FEEDER UNIT1) [ki]	35	3200	0
	AIR FILTER(FOR FEEDER UNIT2) [ki]	35	3200	0
	DISCHARGER CASE [kc]	409	18000	0
	CARBON ELECTRODE [ki]	409	6000	Õ

Figure 4-7. Service-PR Parts


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Pg.4-17

Printer Display	$\odot$			
Ready		Service - Reset		
	c	Factory Default	Restore image controller configuration to factory default setting. Same as factory default from OCP. System requires power cycle.	
	c	) Network (NIC)	Restore network card factory default. System requires power cycle.	
🏉 Manage	C	Complete Reset	Complete reset: Factory default and Network (NIC)	
🕖 Service	C	) PM Counter	Reset Preventive Maintenance Counter.	
	C	Error Log	Delete the error log file.	
	C	Event Log	Delete the event log file.	
Service			Submit	

Figure 4-15. Service-Reset

7. **Replace** the following Table.

Pg.4-20

Option	Description
Password	Allows you to set or change the Service password.
License Keycode	Allows you to enter a License Keycode.
Events	Use the Configuration Events page to set the value for reporting of the PM Warning, engine page count and event log.
Address Book	Displays the Address Book page used to set up E-mail recipients for event notification.
Dealer	Use this page to set up Dealer contact information. This information is displayed when the Vendor button is selected from the top bar.
Misc	Use this page to set some miscellaneous parameters.

Table 4-4. Service-Configuration Options

RICOH	Technical Bulletin	PAGE: 9/19
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8. Add the following after page 4-25.

### **Configuration-Misc**

Use the Configuration Misc page to set some miscellaneous parameters. Click **Submit** to enter.

Printer Display		
Ready	С	onfiguration - Misc
		Miscellaneous
	PS Error Print	Disabled 💌
Manage Service	Job Partial Page Print	Disabled 💌
	Edge-To-Edge Mode	Standard 💌
		Submit

### Figure 4-23. Configuration-Misc

PS Error Print

When enabled, PS error message will be printed on the Accounting Slip Sheet if PS error is happened.

Job Partial Page Print

Set Enable or disable the Job Partial Page Print function.

Edge-to-Edge Mode

Set to Standard or Enhance. When set to Standard, printer performs actual Edgeto-Edge print. When set to Enhance, printer defines very small print margin to the paper edge.

#### 4-26 Web Interface Functions



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9. **Replace** the following figure.

Pg.5-2

### **Controller Assembly Diagram**



\* Exists only if the Multi-protocol Network Interface Option is installed.

\*\* This figure shows the CL121 board.

Figure 5-1. Controller Assembly and Parts



### Model: EMP156

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### Pg.5-4

Unit Revision Label



Figure 5-3. Accessing the Controller Assembly (2)

RI	СОН

Model: EMP156	
---------------	--

Date: 8-Aug-06

No.: RG155016

10. **Replace** the following illustration.

Pg.5-6



\* Exists only if the Attention Lamp Option is installed.

Figure 5-5. Checking Internal Connection (2)



Model: EMP156

Date: 8-Aug-06

11. **Replace** the following.

#### Pg.5-9

### **Removing and Replacing Circuit Boards**

This section describes the procedure for removing and replacing the following boards:

- Controller Main Board
- Memory Module
- Optional Network Interface Card\*
- Operator Control Panel

### **Controller Main Board**

This section includes instructions for replacing the Controller Main Board. The Controller Main Board is installed in the CE Box on permanent standoffs. Two kind of spare parts are supplied for this printer.

. . . . .

Table (	5-2. Controllr	Main Board

Parts No.	Parts Name	Board Name	For
G1551970	Controller Board Assy(EHP)	CL121	Unit Revision "M" not applied machine *
G1558970	Controller Board Assy(EHP)	CL146	Unit Revision "M" applied machine (RoHS machine) *

\* Unit revision is shown in the Unit Revision Label. Refer to Figure 5-3 on page 5-4 for location of the Unit Revision Label.

Before you can remove the controller board you must remove:

All cables connected to the Controller Main Board

----

- Memory Module
- Optional Network Interface Card \*\*
- \*\* Exists only if the Multi-protocol Network Interface Option is installed.

#### Removing the Controller Main Board



Do not exchange battery. There is danger of explosion if battery is replaced incorrectly. Dispose of used in accordance with local regulations. Do not dispose in fire. Model: EMP156

Date: 8-Aug-06

Pg.5-14

### Memory Module

Memory Module is held in place by levers at each end of its socket on the Controller main Board. Two kind of spare parts are supplied for this printer.

Table	5-3.	Memory	Module
-------	------	--------	--------

Parts No.	Parts Name	Туре	For
G1551969	DDR DIMM Assy	DDR DIMM 256MB	Unit Revision "M" not applied machine *
G1558969	DDR DIMM Assy	DDR DIMM 512MB	Unit Revision "M" applied machine (RoHS machine) *

\* Unit revision is shown in the Unit Revision Label. Refer to Figure 5-3 on page 5-4 for location of the Unit Revision Label.

Figure 5-8 shows where Memory Module are installed on the Controller Main Board.

NOTE:

Approved Memory Module are available from your authorized service representative.

### Replacing or Upgrading a Memory Module

- Shut down and open the CE Box Cover as described in "Accessing the Controller Assembly" on page 5-3.
- To release a Memory Module, push outward on the lever on each side of the Memory Module.



Memory Module

Figure 5-8. Releasing a DIMM

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Model: EMP156

Date: 8-Aug-06

No.: RG155016

Pg.5-16

### Removing and Replacing the Hard Disk Drive

The factory-installed hard disk drive (HDD) is formatted and stored with all controller software, including operating software, system software, and printer fonts. Because the HDD is used to store spooled print jobs, available disk space is displayed on the Info screen.

The HDD is secured to the CE Box Cover as shown in Figure 5-4 on page 5-5. Two kind of spare parts are supplied for this printer.

Table 5-4. Hard Disk Drive

Parts No.	Parts Name	For
G1551971	HDD Maintenance Assy(EHP)	Unit Revision "M" not applied machine *
G1555971	HDD Maintenance Assy(EHP)	All machine

\* Unit revision is shown in the Unit Revision Label. Refer to Figure 5-3 on page 5-4 for location of the Unit Revision Label.

### **Proper Handling**

Handle the HDD with care:

- Use proper ESD practices when grounding yourself and the controller.
- Keep magnets and magnetic-sensitive objects away from the HDD.
- Loosening the screws on the top of the HDD voids the warranty.
- Never drop, jar, or bump the HDD.
- Handle the HDD by its sides and avoid touching the printed circuit board assembly.
- Allow the HDD to reach room temperature before installation.

Before you decide that the HDD needs to be replaced, make sure that all cables are connected properly.

### Removing the Hard Disk Drive

#### NOTE:

The current controller software revision should be checked by following OCP menu before removing the HDD. Information/Printer/Controller Revision

\_\_\_\_\_

### CAUTION!

Commercially-available fonts downloaded in the HDD become unuseable after replacing the HDD. Hence, the user must download the fonts to the HDD again after replacing. Explain and ask it to user before removing HDD.

Model: EMP156

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No.: RG155016

Pg.5-19

### **Removing and Replacing the Fan**

This section contains instructions for removing and replacing the Fan. The Fan is secured to the CE Box Cover as shown in the Figure 5-4 on page 5-5. Two kind of spare parts are supplied for this printer.

Table 5-5. Fan						
Parts No.	Parts Name	For				
G1551675	Fan Assy(CE)	Unit Revision "M" not applied machine *				
G1555675	Fan Assy(CE)	All machine				

Table 5 5 Cam

\* Unit revision is shown in the Unit Revision Label. Refer to Figure 5-3 on page 5-4 for location of the Unit Revision Label.

### **Removing the Fan**

- Shut down and open the CE Box Cover as described in "Accessing the Controller Assembly" on page 5-3.
- 2. Disconnect following cables from the Controller Main Board. (Refer to Figure 5-5 on page 5-6 for each cable locations.)
  - HDD Cable from connector J6
  - Fan Cable from connector J21
- 3. Release the Fan Cable from the cable clamps in the CE Box.
- Disconnect the HDD Power Cable from the HDD. (Refer to Figure 5-4 on page 5-5 for cable locations.)
- Release the HDD Power Cable and Fan Cable from the cable clamps on the CE Box Cover.
- 6. Remove the CE Box Cover from the CE Box.
- 7. Remove the 4 screws that secure the Fan to the CE Box Cover.
- 8. Remove the Fan from the CE Box Cover.

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Date: 8-Aug-06

No.: RG155016

Pg.5-20

### Removing and Replacing the Operator Control Panel

This section contains instructions for removing and replacing the Operator Control Panel. Two kind of spare parts are supplied for this printer.

Parts No.	Parts Name	For
G1551514	Panel Assy	Unit Revision "M" not applied machine *
G1558514	Panel Assy	Unit Revision "M" applied machine (RoHS machine) *

Table 5-6. C	perator	Control	Panel
--------------	---------	---------	-------

\* Unit revision is shown in the Unit Revision Label. Refer to Figure 5-3 on page 5-4 for location of the Unit Revision Label.

### Removing the Operator Control Panel

- 1. Shut down the printer as described in "Shutting Down the Printer" on page 5-3.
- 2. Open the front cover of the printer.
- 3. Remove the Rear Cover (R) by removing the screws.
- 4. Open the Air System by removing screws. Ш Rear Cover (L) -11 11 Filter Cover -Rear Cover (R) Air System -

Figure 5-9. Removing the Operator Control Panel (1)

5. Open the Filter Cover, and disconnect the wires by removing screws.





RICOH
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Model: EMP156

Date: 8-Aug-06

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Pg.5-22

10. Disconnect the two cables from the OCP Ass'y.



Figure 5-14. Removing the Operator Control Panel (6)

11. Remove the OCP Ass'y from the frame.



Figure 5-15. Removing the Operator Control Panel (7)

### **Replacing the Operator Control Panel**

- 1. Replace the Operator Control Panel in the reverse order of "Removing the Operator Control Panel" above.
- 2. Verify controller operation as described in "Restoring Controller Functionality After Service" on page 5-8.

#### NOTE:

Panel Assy is used the following Fuse(F1) Fuse(F1): BOURNS INC., Type MF-R110, Rated 30VDC/1.1A Fuse(F1 on Inverter): SKYGATE Co., Ltd., Type 20N0750mA-FS, Rated 125VAC/0.75A

Model: EMP156	Date: 8-Aug-06	No.: RG155016a

### 12. Replace the following steps.

### Pg.5-26

The printer data are backed up at the following opportunities:

- 1. When the printer initializes.
- When the printer clock turns to 1:00 a.m (Default). Backup Time (o'clock) can be modified by OCP.
- 3. When the OCP Backup/Restore manual backup function is used.

### 13. **Replace** the following.

Pg.6-18

\*1: The standard of the printing number of pages restrictions at the time of MOP (Multiple Original Printing) is as follows.
However, following printing number of pages may change depending on actual

However, following printing number of pages may change depending on actual printing environment.

- \*1: The standard of the printing number of pages restrictions at the time of MOP (Multiple Original Printing) and Reverse Page Order is as follows. However, following printing number of pages may change depending on actual printing environment.
- 14. Change the following title of Table 6-4.

Pg.6-18

Table 6-4. Printing number of pages of MOP and Reverse Page Order

# Technical Bulletin

PAGE: 1/2

Model: EMP156 Da			Dat	Date: 6-Oct-06		No.: RG155017
Subject: Engine Maintenance Manual Revise			Prepared by: Y.Minakawa			
From: 2nd Tech §	Support Sec. Service Support I	Dept.				
Classification:	Troubleshooting	Part infe	orma	tion	Action	n required
	Mechanical	Electrical			🛛 Service manual rev	
	Paper path	Transmit/rec		eceive Retrofit information		fit information
	Product Safety	Other (		)		

The Engine Maintenance Manual was changed as follows.

**Add** the following procedures after chapter 7.2.1.55. Pg.7-80

#### No.: RG155017

#### 7.2.1.56. Removal of the Fuser Drive Assembly

#### CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

### Applicable jigs and tool $\oplus$ Screwdriver, Circular-clip Removal Tool.

### [Disassembling Procedures]

- 1. Remove the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-266)
- 2. Open the Air System part. (Refer to item 3.3.3 on page 3-14)
- 3. Remove the Rear Cover (L) Assembly, and the Rear Cover (R) Assembly. (Refer to item 3.3.2 on page 3-9)
- 4. Open the PK Box Assembly. (Refer to item 7.6.1.2 on page 7-374)
- 5. Remove the Fuser Motor Assembly. (Refer to item 7.2.1.11 on page 7-22)
- 6. Remove the Fuser Drive Gear 1. (Refer to item 7.2.1.34 on page 7-50)
- 7. Remove the Circular-clip from the Fuser Drive Base Sub Assembly, to remove the Fuser Drive Assembly.



### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

# Technical Bulletin

### **PAGE: 1/3**

Model: EMP156			Date: 10-Oct-06		06	No.: RG155018
Subject: Engine Maintenance Manual Revise			Prepared by: Y.Minakawa			
From: 2nd Tech §	Support Sec. Service Support I	Dept.				
Classification:	Troubleshooting Mechanical	Part info	ormat al	tion	Action	n required be manual revision
	Paper path     Product Safety	Other (	iit/rec	)		hit information

The Engine Maintenance Manual was changed as follows.

**Replace** the following chapter 7.3.4.17 . **Delete** the chapter 7.3.4.18 .

Pg.7-285~7-287

Date: 10-Oct-06

#### No.: RG155018

#### 7.3.4.17. Removal of the HRD Gear Assembly

#### CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

### 

### 1. Remove the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-267)

- 2. Remove the Backup Roll. (Refer to item 7.3.4.3 on page 7-270)
- 3. Remove the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-266)
- 4. Unscrew the three +screws to remove the Rear Cover Bottom Assembly.



5. Remove the one Retaining Ring to remove the HR Drive Gear, the HR Drive Gear

Shaft Assembly and the one Key. And go to Procedure 7.



Figure 7-338. Removal of the HR Drive Gear



Model: EMP156

Date: 10-Oct-06 No.: R

No.: RG155018

6. Remove the one  $\oplus$  screw to remove the one special washer, the one ball bearing, the HR Drive Gear 2 Assembly.



Figure 7-339. Removal of the HRD Gear Assembly

7. Unscrew the two  $\oplus$  screws to remove the HR Drive Gear Holder Assembly.



### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

# Technical Bulletin

#### **PAGE: 1/3**

Model: DDP70/92/184,EMP156 Date			)ate: 21-Sep-06		No. RG150037	
Subject: Compatibility of mainframe and options			Prepared by: N. Sakamoto			
From: 2nd Tech S	Support Sec. Service Support	Dept.				
Classification:	Troubleshooting	Part info	ormat	on Action required		n required
	Mechanical	Electrical		🗌 Service manua		ce manual revision
	Paper path	Transmit/rec		eive	Retrofit information	
	Product Safety	🛛 Other (		)		

Important Information on RoHS Compliant Mainframes and Options Note: This RTB applies to the DDP 70/92/184 and EMP156.

- When you install any options on the printers, it is best to use them in this combination:
  - **RoHS** compliant printers **+ RoHS** compliant options
  - > Non-RoHS compliant printers + Non-RoHS compliant options
- If you need to use the printers and options in any other combination, check <u>the</u> <u>compatibility table below</u> for the compatibility.
- Make sure to read the **Important Notes** under the compatibility table.



Model: DDP70/92/184,EMP156

No. RG150037

O: Compatible

Date: 21-Sep-06

**□**: Compatible with conditions

- X: Incompatible
- (): Product code

D	D	Ρ
-	-	

		Non-RoHS mainframe		RoHS mainframe	
		DDP70e	DDP92/184	DDP70e	DDP92/184
	Standard finisher DDP70(G85000)	0	Х	0	Х
	High Capacity Feeder DDP70(G85300)	0	Х	0	Х
	Container Stacker 1 DDP70(G85100)	0	Х	0	Х
	Container Stacker 1 DDP70(G85100) +	0	Х	0	Х
	Container Stacker 2 DDP70(G85200)				
	Container Stacker 2 DDP70(G85200) +	0	X	0	X
	Standard finisher DDP70(G85000)				
INON-	Standard finisher DDP92/184(G85800)	X	0	X	0
ROHS	High Capacity Feeder DDP92/184(G86200)	X	0	Х	0
	Container Stacker 1 DDP92/184(G85900)	X	0	Х	0
	Container Stacker 1 DDP92/184(G85900)+	Х	0	Х	0
	Container Stacker 2 DDP92/184(G86000)				
	Container Stacker 2 DDP92/184(G86000)+	Х	0	Х	0
	Standard finisher DDP92/184(G85800)				
	Adobe Postscript 3 Upgrade Kit	0	Х	Х	Х
	DDP70(G86900)				
	Adobe Postscript 3 Upgrade Kit	Х	0	Х	X
	DDP92(G87000)				

		Non-RoHS	6 mainframe	RoHS mainframe	
		DDP70e	DDP92/184	DDP70e	DDP92/184
	High Capacity Feeder DDP70(G85300)	0	X	0	X
	Container Stacker 1 DDP70(G85100)	0	X	0	Х
	Container Stacker 1 DDP70(G85100)+ Container Stacker 2 DDP70(G85200)	0	X	0	X
	Container Stacker 2 DDP70(G85200)+ Standard finisher DDP92/184(G85800)	<b>D</b> (*1)	X	0	X
	Standard finisher DDP92/184(G85800)	<b>□</b> (*2)	0	0	0
ROHS	High Capacity Feeder DDP92/184(G86200)	X	0	Х	0
	Container Stacker 1 DDP92/184(G85900)	X	0	Х	0
	Container Stacker 1 DDP92/184(G85900)+ Container Stacker 2 DDP92/184(G86000)	X	0	X	0
	Container Stacker 2 DDP92/184(G86000)+ Standard finisher DDP92/184(G85800)	X	0	X	0
	Adobe Postscript 3 Upgrade Kit DDP70(G86900)	0	X	0	X
	Adobe Postscript 3 Upgrade Kit DDP92(G87000)	X	0	X	0

Model: DDP70/92/184,EMP156	Date: 21-S
----------------------------	------------

Sep-06

No. RG150037

#### EMP

		Non-RoHS	RoHS
		EMP156	EMP156
Non-	Additional Stacker EMP156 (G86500)	0	0
RoHS	High Capacity Feeder 1 EMP156(G86700)	0	0
	High Capacity Feeder 2 EMP156 (G86600)	0	0
	Standard Stacker EMP156 (G86501)	0	0
	Attention Light EMP156(G86800)	0	0
RoHS	Additional Stacker EMP156 (G86500)	0	0
	High Capacity Feeder 1 EMP156(G86700)	0	0
	High Capacity Feeder 2 EMP156 (G86600)	0	0
	Standard Stacker EMP156 (G86501)	0	0
	Attention Light EMP156(G86800)	0	0

**Important Notes** regarding the compatibility table:

- Even with items labeled "O" (compatible), make sure to update to the latest Controller and Engine firmware at machine installation.
- Make sure to update to the latest DDP184 Server firmware at installation. This • firmware is separate for the RoHS model and Non-RoHS model.
- (\*1): These devices can be used in this combination under the following conditions:
  - Engine firmware Version B or later, with address 9756h (Master) set to 01.  $\geq$ **Note:** See DDP70e Maintenance Manual section 8.4.6.4 for more details.
  - Controller firmware Version ev620e or later.
  - RoHS model printer driver (uninstall non-RoHS printer driver)
  - > Dip SW on control board for RoHS Standard Finisher set to the **L position**.
  - Dip SW No. 4 on the Container Stacker 2 set to ON.
- (\*2): These devices can be used in this combination under the following conditions:
  - Engine firmware Version B or later, with address 9756h (Master) set to 01.  $\geq$ Note: See DDP70e Maintenance Manual section 8.4.6.4 for more details.
  - Controller firmware Version ev620e or later.
  - RoHS model printer driver (uninstall non-RoHS printer driver)
  - Dip SW on control board for RoHS Standard Finisher set to the L position.

## Technical Bulletin

Reissued:25-Oct-06 Model: EMP156

Date: 21-June-06

No.: RG155006b

#### **RTB Reissue**

The items in bold italics have been added.							
Subject: Firmware Release History (Engine)			Prepared by: Y.Minakawa				
From: 2nd Tech Support Sec. Service Support I		Dept.					
Classification:	Troubleshooting	Part information	tion	Action required			
	Mechanical	Electrical		Service manual revision			
	Paper path	Transmit/rec	eive	Retrofit information			
	Product Safety	🛛 Other (	)				

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
J	G1552685E	October 2006 production
I	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After confirming the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please confirm "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected			
J	Other changes:			
	1. Support of the "Transit Pass Unit".			
	Engine Microcode Revisions:			
	Microcode	Revision		
	Print Engine - Master	09		
	Print Engine - Slave	09		
	Print Engine - FPGA	08 (The same as Rev.H)		
	AHP(HCF)	08 (The same as Rev.H)		
	Stacker 1 (Container Stacker 1)	09		
	Stacker 2 (Container Stacker 2)	09		

# Technical Bulletin

Reissued:25-Oct-06

Model: EM	EMP156 Date: 21-June-06 No.: RG155006b					
Version	Sympton	n Corrected				
I	Other changes:					
	Heater control parameters were optimized to prevent unnecessary detections					
	of the sensor error.					
	Encine Microcode Devisioner					
	Engine Microcode Revisions.					
	Microcode	Revision				
	Print Engine - Master	08				
	Print Engine - Slave	08				
	Print Engine - FPGA	08 (The same	e as Rev.H)			
	AHP(HCF)	08 (The same	e as Rev.H)			
	Stacker 1 (Container Stacker 1)	08				
	Stacker 2 (Container Stacker 2)	08				
Η	<ul> <li>EC#09 (Print Timeout Error)</li> <li>E312, E313 misdetection.</li> <li>E275 (OC HARD ERROR) misdetection.</li> <li>The image density sometimes decreases in Very Thick mode.</li> <li>Dirty background.</li> </ul> Other Changes <ul> <li>The detection conditions for E072/E073 were changed to prevent unnecessary occurrences.</li> <li>Toner density control was improved.</li> <li>The speed of the cleaner motor was increased to improve cleaning performance.</li> <li>The PM counter for the discharge case assembly now counts the numb of drum revolutions (not number of pages).</li> </ul>					
	Microcode	Revision				
	Print Engine - Master	07				
		07 08				
	AHP(HCF)	08				
	Stacker 1 (Container Stacker 1)	07				
	Stacker 2 (Container Stacker 2)	07				
	<b>_</b>					

### Reissued:25-Oct-06 Model: EMP156

Model: EM	IP156	Date: 21-June-06 No.: RG155006t				
Version	Symptom	Corrected				
G	<ul> <li>The image density decreases after 400KC developments are made of an original with high image coverage.</li> <li>EC#09 (print time-out error) occurs when the machine switches from the built-in hopper to the optional hopper (AHP) during a print job.</li> </ul>					
	<ul> <li>Other Changes</li> <li>The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180).</li> <li>The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).</li> <li>Engine Microcode Revisions:</li> </ul>					
	Microcode	Revision				
	Print Engine - Master	06				
	Print Engine - Slave	06				
	Print Engine - FPGA	07				
	AHP(HCF)	07				
	Stacker 1 (Container Stacker 1)	06				
	Stacker 2 (Container Stacker 2)	06				
E	<ul> <li>Stacker 2 (Container Stacker 2)</li> <li>The motor control was changed to reduce HCF feed jams.</li> <li>E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)</li> <li>Other Changes: <ul> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a paper weight.</li> <li>The amount of stack offset between jobs can now be adjusted for long paper.</li> <li>Added an Air Pressure Adjustment.</li> <li>Added an ST Stopper Adjustment (to the driver test).</li> </ul> </li> </ul>					



### Reissued: 25-Oct-06

Model: EMP156 Da			Dat	e: 12-Jun-06	No.: RG155014a	
RTB Reissue The items in bold italics have been added.						
Subject: Firmware Release History (Controller)				Prepared by: Y.Minakawa		
From: 2nd Tech.	Support Sec. Service Suppor	t Dept				
Classification:	Classification: Troubleshooting Part inform		ormat	tion 🗌 Actio	n required	
	Mechanical Electrical		al	🗌 Servi	ce manual revision	
	Paper path	🗌 Transm	it/rec	eive 🗌 Retro	ofit information	

This RTB contains the software release history for the Controller.

)

🛛 Other (

Version	Program No.	Effective Date
em 202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set:
   Engine Program No. G1552685E or newer
- Confirm revision of current controller software and select the pertinent file from three files and install it. Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware.

Version	Symptom Corrected
em202	Symptom Corrected
	1. Preprinted paper printed reverse side when stacked in Sample Tray.
	2. French language message displayed malfunction on the OCP.
	Other changes:
	1. Support of the "Transit Pass Unit".
	2. Click Charge Counter added. (Counting each page regardless of paper size.)
	3. Removal of (mistaken) display of A4 Tab LEF and Letter tab LEF on the OCP.



### Reissued: 25-Oct-06

Model: EN	/IP156	Date: 12-Jun-06	No.: RG155014a			
Version	Sympton	n Corrected				
em201	Part of the printed image is shifted	in the direction of the	scan.			
om200	INOTE: I HIS ONLY NAPPENS ON THE Re-     The PostScript version displayed in	bine compliant machin	10.			
emzoo	Incorrect: 3011					
	Correct: 3015					
	<ul> <li>Some minor symptoms with PostScript printing were corrected.</li> <li>Other changes:</li> <li>Supports new RoHS compliant hardware.</li> </ul>					
em114	<ul> <li>German and French languages we deleted</li> </ul>	re added. Japanese l	anguage was			
	<ul> <li>Paper Color function is supported y</li> </ul>	with PostScript.				
	Considers the Media Color wh	en processing Media I	Matching.			
	"Printer - Paper Source - Paper ""	r Color" menu was ad	ded to the OCP.			
	Paper Color" menu was adde "Manage - System - Virtual Pri	d to "Manage - Systen nter - each VPT - Pos	n - Tray and tScript" of the			
	Web Utility.					
	<ul> <li>String of the Color was added</li> </ul>	to "prtInputMediaColo	r" of the MIB.			
	"ocpCustomMediaColor" was a	added in the MIB.				
	<ul> <li>Tracing Paper is supported as a Paper</li> </ul>	aper Type.				
	The "Accounting Slip Sheet" functi	on was added.				
	"Accounting Slip Sheet: Enable "Manager Sustained Distance Minimum Print Pr	e/Disable" option was	added to the			
	Web Litility (factory default: Dis	nter - each VPT - Gen abled)	ieral" menu of the			
	• The Image Shift function with PJL	commands is support	ed.			
	<ul> <li>IBCP mode is supported with Pos</li> <li>Letter and A4 can be selected with</li> </ul>	ISCRIPT.	lless of sheet			
	orientation.	TOE and TOE, regard				
	"Auto Feed Orientation" option	was added to "Manag	ge - System -			
	General - Options" of the Web	Utility.				
	The LPD Banner Page function wa	s added.				
	"LPD Banner Page: Enable/Dis	sable" option was add	ed to: "Manage -			
	System - Virtual Printer" (facto	ry default: Disabled).	t Trov and			
	<ul> <li>Additional HCF</li> </ul>	en me Standard input	i ray and			
	<ul> <li>The "Printer - Paper Source - I</li> </ul>	ICF Tray Control" me	nu was added to			
	the OCP.		<b>  -</b>			
	I he "HCF Tray Control" Menu Web Litility	was added to "System	n - Tray" in the			
	A timeout (time limit) was added for	or LPR, RawTCP and	IPP.			
	The configuration Report function	was added.				
	The "configuration" option was	added to the "Report"	' menu of the			



### Reissued: 25-Oct-06

Model: EN	IP156	Date: 12-Jun-06	No.: RG155014a		
Version	Symptom Corrected				
	<ul> <li>OCP for user adjustable parameters.</li> <li>The "Config Print" option was added to the "Service - Configuration" menu of the OCP for various engine parameters.</li> </ul>				
	<ul> <li>Added new Default Virtual Printer "lp" to port 9100.</li> <li>Changed Default Virtual Printer "TEXT" to "text" for port 3100.</li> <li>Changed engine parts name "Cyclone Filter" to "Fine Filter" on the OCF Web / MIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer functionality.</li> <li>Corrected the page image position for PostScript.</li> <li>Corrected the EC#04 error when using the HCF2 Upper Tray.</li> <li>Corrected the "2 on 4 off" test print pattern.</li> <li>Added the Engine FPGA version to the Status Page.</li> <li>Corrected a display error for the number of OPC sheets used (10→ 11)</li> <li>Corrected the PJL USTATUS command response.</li> </ul>				

# Technical Bulletin

### **PAGE: 1/4**

Model: EMP156 Da			Dat	ate: 22-Nov-06		No.: RG155019
Subject: PM Parts List			Prepared by: Y.Minakawa			
From: 2nd Tech Support Sec. Service Support Dept.						
Classification:	Troubleshooting	🗌 Part informa		tion	Action	n required
	Mechanical	Electrical			🖂 Servic	ce manual revision
Paper path     Transmit/rec		eive	Retro	fit information		
	Product Safety	🗌 Other (		)		

PM Parts List of the Engine Maintenance Manual-rev01 is changed as follows:

### Pg. 4-1~4-3

Table 4-1. PM Parts List(1)

	800Ki	1600Ki	2400Ki	3200Ki	Expected	Note	
PM Parts							
"Machine Inside			С			4.4.1.10	
(Middle Stay etc.)"							
Drum Unit Area			I				
Drum Wrap Sensor			C			4415	
Surface Voltage		С		С		4.4.1.10	
Sensor						Blower brush	
LED Erase			C	Í		4.4.1.9	
Charger unit and Wire	С	С	С	С		4.4.1.1	
Break Pad x 3	At 9,600k	(i replacem	nent require	ed.		7.2.2.6	
Developer Unit			С			4.4.1.7	
Drive-train of	At 12,000	Ki lubricati	ion require	d.		4.4.1.8	
Developer unit			-				
Toner Bottle Joint	C	Ċ	C	C			
Area							
Toner Collector Bottle	С	С	С	С			
Area							
Flicker Bar in Cleaner	At 2,500k	At 2,500Kc cleaning required.					
unit	(At the sa	(At the same time replacing Cleaning Brush.)					
BR Separator x 3	С	С	С	С	At 4,800Ki	4.4.2.1	
					replacement		
					required.		
Temperature	С	С		С		4.4.2.2	
Sensor(1)							
Temperature			С			4.4.2.11	
Sensor(2)							
Heat Roll and Collar			R			7.3.4.6	
Backup Roll			R			7.3.4.3	
Heater Lamp	At 19,200	Ki replace	ment requi	red.		7.3.4.4	
Assembly			•				
Inverter Valve Piece		С		С		4.4.2.4	
in Inverter Unit							
Pressure Roller and		С		С		4.4.2.3	
Feed Roller in							
Inverter Unit							
Feed Reller in	<u>с</u>	C	C C	<u>с</u>		4.4.2.6	
Inverter Unit		-					
CCD Sensor	C	С	C	C		4.4.2.5	
Regist Drive Roller	At 17,600	Ki replace	ment requi	red.		7.3.3.25	
Assembly							
Timing Driven Roller	At 17,600	Ki replace	ment requi	red.		7.3.3.35	

# Technical Bulletin

**PAGE: 2/4** 

Model: EMP156					Date: 22-Nov-06	No.: RG155019
Transfer Corona Unit and Wire	С	С	С	С	4.4.1.4	ŀ
Discharging Corona Unit and Wire	С	С	С	С	4.4.1.3	}
Erase Wire Assembly and Erase Corotron Wire	С	С	С	С	4.4.1.2	2
Transfer Belt	I	R	I	R	7.2.6.2	2
Sleeve Bearing x 4	At 19,200	)Ki replace	ment requi	red.	7.2.6.1	4
Earth Spring Assembly(5) x 3 (for Transfer)	At 4,800k	Ki replacen	nent require	7.2.6.4	ł	
Carbon Electrode (for Transfer)	At 7,200k	Ki replacen	nent require	7.2.6.3	}	
Paper Hopper	C	C	C	C	4.4.3	
Pick Belt Position Sensor				С	4.4.2.7	7
Air Filter				R	7.6.1.7	
Paper Guide	С	С	С	С	4.4.2.8	3
(for Fuser)						
Paper Guide (for Discharger)	С	С	С	С	4.4.2.9	)
Opt-Window (Optical Unit)	At 5,600k	Ki cleaning	required.	4.4.1.1	1	
Photo Interrupter (HR In Sensor)	С	С	С	С	4.4.2.1	0
Exhaust Fan and Air Filter (fot Thermopile)	At 5,600k	ki cleaning	required.		4.4.2.1	2

### Pg. 4-5

Table 4-8. PM Parts List(8)

Table 4-8. PM Parts List	(8)			Г		]	
	800Ki	1600Ki	2400Ki		3200Ki	Expected	Note
Upper Feeder Hopper, Lower, Feeder, Hopper							
Paper Hopper	С	С	С		С		4.4.4
Pick Belt / Pick Belt					С		4.4.2.7
Position Sensor							

## Technical Bulletin

**PAGE: 3/4** 

Model: EMP156

Date: 22-Nov-06

No.: RG155019

### Pg. 4-8

Table 4-12. Scheduled inspection items and frequencies

No.	Items	Frequency	Customer Engineer's Task	Operator's Task	Work Time (min.)	Note	Maint. Ref.
5.	Cleaning					(yes): Qualified operator by	
	Drum Wrap Sensor	2,400ki	Yes	(Yes)	3	CE may be able to do	4.4.1.5
	Charger unit and Wire	800ki	Yes		7	onooning	4.4.1.1
	Paper Hopper / Tray and	Daily		Yes	1		4.4.3
	Stacker Area	Per visit	Yes		1		4.4.4 4.4.5
	Toner Bottle Joint Area	Per supplying toner		Yes	1		
		Per visit	Yes		1		
	Transfer Corona Unit and Wire	800ki	Yes		5	Ki: kilo-Images	4.4.1.4
	Discharging Corona unit	Weekly		Yes	1		1113
	and Wire	800ki	Yes		4		4.4.1.3
	Erase Wire Assembly and Erase Corotron Wire	800ki	Yes		4		4.4.1.2
	LED Eraser	2,400ki	Yes		1		4.4.1.9
	Machine Inside (Middle Stay etc )	2,400ki	Yes		8	*1	4.4.1.10
	CCD Sensor	<sup>*1</sup> 800ki	Yes	(Yes)	1	' Depend on Paper Quality	4.4.2.5
	Developer unit	2,400ki	Yes		3		4.4.1.7
	BR Separator in Fuser	Daily		Yes	1		4401
	unit	Per visit	Yes		1		4.4.2.1
	Toner Collector Bottle	Per Bottle replacement		Yes	1		
	Alea	Per visit	Yes		1		
	Flicker Bar in Cleaner unit	2,400ki	Yes		5		4.4.1.6
	Inverter Valve Piece in	Daily		Yes	5		4.4.2.4
	Inverter Unit	1,600ki	Yes		5		4.4.2.4
	Pressure Roller and Feed Roller in Inverter Unit	<sup>*1</sup> 1,600 ki	Yes		5		4.4.2.3
	Surface voltage Sensor	1,600ki	Yes		3		4.4.1.10
	*0	800ki	Yes		3	* <sup>2</sup> Refer to Note 12	4.4.2.2
	Temperature Sensor <sup>2</sup>	2,400ki	Yes		<sup>3</sup> 13 (33)	<sup>o</sup> Refer to Note 13	4.4.2.11
	Pick Belt / Pick Belt Position Sensor	3,200ki	Yes		15		4.4.2.7
	Fuser-In Paper Guide /	Daily		Yes	5		4.4.2.8
	Fuser out Paper Guide	Per Visit	Yes		5		7.7.2.0

# Technical Bulletin

### PAGE: 4/4

Мо	Model: EMP156 Date: 22-No						lov-06	No.: F	G155019
	Paper Guide in	Daily		*4 Y	es	1	*4 before star	ting	1129
	Discharger Unit	Per Visit	Yes			1	a daily oper	ration	4.4.2.3
	Opt-Window (Optical Unit)	5,600ki	Yes		-	15	the paper w too large.	idth	4.4.1.11
	Photo Interrupter (HR In Sensor)	800ki	Yes		-	10			4.4.2.10
	Exhaust Fan and Air Filter(for Thermopile)	5,600ki	Yes		-	20			4.4.2.12
	Lubrication								
	Drive-Train of Developer unit	12,000ki	Yes		-	8			4.4.1.8

Model: EMP156

## Technical Bulletin

Reissued:	06-March-07

Date: 21-June-06

No.: RG155006c

#### **RTB Reissue**

The items in bold italics have been added.						
Subject: Firmwar	e Release History (Engine)	Prepared	d by: Y.Minakawa			
From: 2nd Tech S	Support Sec. Service Support I					
Classification:	Troubleshooting	Part informat	tion	Action required		
	Mechanical	Electrical		Service manual revision		
	Paper path	Transmit/rec	eive	Retrofit information		
	Product Safety	🛛 Other (	)			

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
К	G1552685F	January 2007 production
J	G1552685E	October 2006 production
l	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After confirming the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please see "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected
K	Other changes:
	<ol> <li>New settings added: The reverse rotation angle for the registration roller can now be controlled separately for simplex and duplex printing. This is to minimize skew.</li> </ol>
	2. The heater control parameters were optimized for when switching between thin and thick paper. This will help ensure the proper print speed.
	3. The pick belt turns in reverse about 25mm when the exit tray is lowered after printing. This is to ensure that the paper does not get caught between the pick belt and separation pawl.

## Technical Bulletin

### Reissued: 06-March-07

Version         Symptom Corrected           Engine Microcode Revisions:         Microcode           Microcode         Revision	
Engine Microcode Revisions:       Microcode       Revision	
Microcode Revision	
Microcode Revision	
Print Engine - Master 0A	
Print Engine - Slave 0A	
Print Engine - FPGA 08 (The same as Rev.H)	
AHP(HCF) 09	
Stacker 1 (Container Stacker 1) 0A	
Stacker 2 (Container Stacker 2) 0A	
J Other changes: 1 Support of the "Transit Pass Unit"	
Engine Microcode Revisions:	
Microcode Revision	
Print Engine - Master 09	
Print Engine - Slave 09	
Print Engine - FPGA 08 (The same as Rev.H)	
AHP(HCF) 08 (The same as Rev.H)	
Stacker 1 (Container Stacker 1) 09	
Stacker 2 (Container Stacker 2) 09	
I Other changes:	
Heater control parameters were optimized to prevent uppecessary dete	otions
of the sensor error.	5110113
Engine Microcode Revisions:	
Microcode Revision	
Print Engine - Master 08	
Print Engine - Slave 08	
Print Engine - FPGA 08 (The same as Rev.H)	
AHP(HCF) 08 (The same as Rev.H)	
Stacker 1 (Container Stacker 1) 08	
Stacker 2 (Container Stacker 2) 08	

### Reissued: 06-March-07

Model: EM	1P156	Date: 21-June-06	No.: RG155006c					
Version	Symptom	Corrected						
	<ul> <li>E275 (OC HARD ERROR) misdetection.</li> <li>The image density sometimes decreases in Very Thick mode.</li> <li>Dirty background.</li> </ul>							
	<ul> <li>Other Changes</li> <li>The detection conditions for E072/E073 were changed to prevent unnecessary occurrences.</li> <li>Toner density control was improved.</li> <li>The speed of the cleaner motor was increased to improve cleaning performance.</li> <li>The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).</li> </ul>							
	Engine microcode Revisions:							
	Microcode	Revision						
	Print Engine - Master	07						
	Print Engine - Slave	07						
	Print Engine - FPGA	08						
	AHP(HCF)	08						
	Stacker 1 (Container Stacker 1)	07						
	Stacker 2 (Container Stacker 2)	07						
G	<ul> <li>The image density decreases after 400KC developments are made of an original with high image coverage.</li> <li>EC#09 (print time-out error) occurs when the machine switches from the built-in hopper to the optional hopper (AHP) during a print job.</li> <li>Other Changes</li> <li>The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180).</li> <li>The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).</li> </ul>							
	Engine Microcode Revisions:							
	Microcode Revision							
	Print Engine - Master	06						
	Print Engine - Slave	06						
	Print Engine - FPGA	07						
	AHP(HCF)	07						
	Stacker 1 (Container Stacker 1)	06						
	Stacker 2 (Container Stacker 2)	06						

### Reissued: 06-March-07

Model: EM	IP156	Date: 21-June-06	No.: RG155006c				
Version	Symptom Corrected						
E	<ul> <li>The motor control was changed to reduce HCF feed jams.</li> <li>E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)</li> </ul>						
	<ul> <li>Other Changes:</li> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a pap</li> <li>The amount of stack offset betw paper.</li> <li>Added an Air Pressure Adjustme</li> <li>Added an ST Stopper Adjustme</li> </ul>	er weight. ween jobs can now be ad nent. ent (to the driver test).	justed for long				

## Technical Bulletin

|--|

Date: 21-June-06

No.: RG155006d

#### **RTB Reissue**

Model: EMP156

The items in bold italics have been added.							
Subject: Firmware Release History (Engine)			Prepared by: Y.Minakawa				
From: 2nd Tech Support Sec. Service Support D		Dept.					
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	<ul> <li>Part information</li> <li>Electrical</li> <li>Transmit/rec</li> <li>Other (</li> </ul>	tion eive )	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>			

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date	
L	G1552685G	May 2007 production	
K	G1552685F	January 2007 production	
J	G1552685E	October 2006 production	
I	G1552685D	May 2006 Production	
Н	G1552685C	April 2006 Production	
G	G1552685B	January 2006 Production	
E	G1552685	August 2005 Production	

### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After confirming the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please see "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected			
L	Other changes:			
	<ol> <li>Paper transport control was changed so that there is no space in between sheets of paper after switching from duplex to simplex printing. This minimizes the drop in print speed when switching from duplex to simplex.</li> <li>Note: There is one exception: The space between sheets is about 2 sheets when switching from Tray 1/2 duplex to the HCF2 lower tray simplex.</li> </ol>			

### Reissued: 16-May-07

Model: EMP156		Date: 21-June-06	No.: RG155006d				
Version	Symptom Corrected						
	Engine Microcode Revisions:						
	Microcode	Revision					
	Print Engine - Master	0B					
	Print Engine - Slave	0B					
	Print Engine - FPGA	08 (The same	as Rev.H)				
	AHP(HCF)	09 (The same	as Rev.K)				
	Stacker 1 (Container Stacker 1)	0B					
	Stacker 2 (Container Stacker 2)	0B					
	<ol> <li>New settings added: The reverse rotation angle for the registration roller can now be controlled separately for simplex and duplex printing. This is to minimize skew.</li> <li>The heater control parameters were optimized for when switching between thin and thick paper. This will help ensure the proper print speed.</li> <li>The pick belt turns in reverse about 25mm when the exit tray is lowered after printing. This is to ensure that the paper does not get caught between the pick belt and separation pawl.</li> <li>Engine Microcode Revisions:</li> </ol>						
	Microcode	Revision					
	Print Engine - Master	0A					
	Print Engine - Slave	0A					
	Print Engine - FPGA	08 (The same	as Rev.H)				
	AHP(HCF)	09					
	Stacker 1 (Container Stacker 1)	0A					
	Stacker 2 (Container Stacker 2)	0A					
# Technical Bulletin

## Reissued: 16-May-07

Model: EN	/IP156	Date: 21-June-06 No.: RG155006d		
Version	Sympton	n Corrected		
J	Other changes: 1. Support of the "Transit Pass Unit". Engine Microcode Revisions:			
	Microcode	Revision		
	Print Engine - Master	09		
	Print Engine - Slave	09		
	Print Engine - FPGA	08 (The same	as Rev.H)	
	AHP(HCF)	08 (The same	as Rev.H)	
	Stacker 1 (Container Stacker 1)	09		
	Stacker 2 (Container Stacker 2)	09		
I	Other changes:			
	Heater control parameters were optimized	red to prevent unnec	essarv detections	
	of the sensor error.			
	Engine Microcode Revisions:			
	-			
	Microcode	Revision		
	Print Engine - Master	08		
	Print Engine - Slave	08		
	Print Engine - FPGA	08 (The same	as Rev.H)	
	AHP(HCF)	08 (The same	as Rev.H)	
	Stacker 1 (Container Stacker 1)	08		
	Stacker 2 (Container Stacker 2)	08		
H	<ul> <li>EC#09 (Print Timeout Error)</li> <li>E312, E313 misdetection.</li> <li>E275 (OC HARD ERROR) misdete</li> <li>The image density sometimes decr</li> <li>Dirty background.</li> </ul> Other Changes <ul> <li>The detection conditions for E072/E unnecessary occurrences.</li> <li>Toner density control was improved</li> <li>The speed of the cleaner motor was performed.</li> </ul>	ction. eases in Very Thick r E073 were changed to d. s increased to improv	node. o prevent ve cleaning	
	<ul> <li>The PM counter for the discharge of drum revolutions (not number of</li> </ul>	ase assembly now copages).	ounts the number	

Reissued: 16-May-07

Model: EMP156		Date: 21-June-06	No.: RG155006d		
Version	Sympton	n Corrected			
	Engine Microcode Revisions:				
	Microcode	Revision			
	Print Engine - Master	07			
	Print Engine - Slave	07			
	Print Engine - FPGA	08			
	AHP(HCF)	08			
	Stacker 1 (Container Stacker 1)	07			
	Stacker 2 (Container Stacker 2)	07			
G	<ul> <li>The image density decreases after original with high image coverage.</li> <li>EC#09 (print time-out error) occurs built-in hopper to the optional hopper</li> </ul>	when the machin er (AHP) during a	ents are made of an e switches from the print job.		
	<ul> <li>The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180).</li> <li>The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).</li> <li>Engine Microcode Revisions:</li> </ul>				
	Microcode	Revision			
	Print Engine - Master	06			
	Print Engine - Slave	06			
	Print Engine - FPGA	07			
	AHP(HCF)	07			
	Stacker 1 (Container Stacker 1)	06			
	Stacker 2 (Container Stacker 2)	06			
E	<ul> <li>The motor control was changed to reduce HCF feed jams.</li> <li>E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)</li> <li>Other Changes: <ul> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a paper weight.</li> <li>The amount of stack offset between jobs can now be adjusted for long paper.</li> <li>Added an Air Pressure Adjustment.</li> <li>Added an ST Stopper Adjustment (to the driver test).</li> </ul> </li> </ul>				

# Technical Bulletin

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Model: EMP156 Dat					7	No.: RG155020
Subject: Engine Maintenance Manual Revise				Prepared by: Y.Minakawa		
From: PPBG QA.Service Dept.						
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	☐ Part info ☐ Electrica ☐ Transmi ☐ Other (	ormat al t/rec	ion eive )	☐ Action ⊠ Servic ☐ Retrot	n required ce manual revision fit information

The Engine Maintenance Manual Revision 4 was changed as follows.

Model: EMP156

Date: 1-Jun-07

No.: RG155020

## 1. **Replace** the following tables.

Pg. 5-9

Table	5-3	Detail	Frror	Code
rabic	0.0.	Dottan	21101	oouc

Detail Error Code	Error Name	Description	Page No.
E06F	Paper On Paper Path 2 (Build-in HP Upper Pick)	A paper is on the Build-in HP Upper Pick sensor.	5-78
E070	Paper On Paper Path 9 (IS Feed)	A paper is on the IS Feed sensor.	5-78
E071	Paper On Paper Path 10 (IS Top)	A paper is on the IS Top sensor.	5-78
E072	Paper On Paper Path 11 (CCD1)	A paper is on the CCD 1 sensor.	5-78
E073	Paper On Paper Path 12 (CCD2)	A paper is on the CCD 2 sensor.	5-78
E074	Paper On Paper Path 13 (Timing)	A paper is on the Timing sensor.	5-78
E075	Paper On Paper Path 14 (Skew1)	A paper is on the Skew 1 sensor.	5-78
E076	Paper On Paper Path 15 (Skew2)	A paper is on the Skew 2 sensor.	5-78
E077	Paper On Paper Path 16 (Drum Wrap)	A paper is on the Drum Wrap sensor.	5-78
E078	Paper On Paper Path 17 (HR In)	A paper is on the HR In sensor.	5-78
E079	Paper On Paper Path 18(HR Out1)	A paper is on the HR Out 1 sensor.	5-78
E07A	Paper On Paper Path 19 (HR Out2)	A paper is on the HR Out 2 sensor.	5-78
E07B	Paper On Paper Path 20 (Flipper Path)	A paper is on the Flipper Path sensor.	5-78
E07C	Paper On Paper Path 21 (PF Out1)	A paper is on the PF Out 1 sensor.	5-78
E07D	Paper On Paper Path 22(PF Out2)	A paper is on the PF Out 2 sensor.	5-78
E07E	Paper On Paper Path 23 (Switch Back)	A paper is on the Switch Back sensor.	5-78
E080	Paper On Paper Path 24 (Return 1)	A paper is on the Return 1 sensor.	5-78
E081	Paper On Paper Path 25 (Return 2)	A paper is on the Return 2 sensor.	5-78
E082	Paper On Paper Path 26 (Retum Timing)	A paper is on the Return Timing sensor.	5-78
E089	Paper On Paper Path AHP 1(AHP1 ISV)	A paper is on the AHP 1 ISV sensor.	5-87
E08A	Paper On Paper Path AHP 2(AHP1 ISH)	A paper is on the AHP 1 ISH sensor.	5-87
E08B	Paper On Paper Path AHP 3(AHP1 Out)	A paper is on the AHP 1 Out sensor.	5-87
E08C	Paper On Paper Path AHP 4(AHP1 In)	A paper is on the AHP 1 In sensor.	5-87
E08D	Paper On Paper Path AHP 5(AHP2 ISV)	A paper is on the AHP 2 ISV sensor.	5-87
E08E	Paper On Paper Path AHP 6(AHP2 ISH)	A paper is on the AHP 2 ISH sensor.	5-87
E08F	Paper On Paper Path AHP 7(AHP2 Out)	A paper is on the AHP 2 Out sensor.	5-87
E090	N/A		
F091	Paper On Paper Path AHP 4 (AHP	A paper is on the AHP Transit Path 1 sensor	5-78
E092	Paper On Paper Path AHP 5(AHP Transit Path 2)	A paper is on the AHP Transit Path 2 sensor.	5-78
E0A2	Paper On Paper Path ST1 (ST1 Path 1)	A paper is on the ST 1 Path 1 sensor.	5-90
E0A3	Paper On Paper Path ST2 (ST1 Path 2)	A paper is on the ST 1 Path 2 sensor.	5-90
E0A4	Paper On Paper Path ST3 (ST1 Path 3)	A paper is on the ST 1 Path 3 sensor.	5-90
E0A5	Paper On Paper Path ST4 (ST1 Path 4)	A paper is on the ST 1 Path 4 sensor.	5-90
E0A6	Paper On Paper Path ST5 (ST1 Path 5)	A paper is on the ST 1 Path 5 sensor.	5-90
E0A7	Paper On Paper Path ST6 (ST1 Path 6)	A paper is on the ST 1 Path 6 sensor.	5-90

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Model: EMP156

Date: 1-Jun-07

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Table 5-3. Detail Error Code

	Detail Error Code	Error Name	Description	Page No.
	E0A8	Paper On Paper Path ST7 (ST1 Lower Jam)	A paper is on the ST 1 Lower Jam sensor.	5-95
	E0A9	Paper On Paper Path ST8 (ST1 Upper Jam)	A paper is on the ST 1 Upper Jam sensor.	5-95
۶	EUAA	Paper On Paper Path ST9 (ST2 Path 1)	A paper is on the ST 2 Path 1 sensor.	5-90
	E0AB	Paper On Paper Path ST10 (ST2 Path 2)	A paper is on the ST 2 Path 2 sensor.	5-90
	E0AC	Paper On Paper Path ST11 (ST2 Path 3)	A paper is on the ST 2 Path 3 sensor.	5-90
	E0AD	Paper On Paper Path ST12 (ST2 Path 4)	A paper is on the ST 2 Path 4 sensor.	5-90
	E0AE	Paper On Paper Path ST13 (ST2 Path 5)	A paper is on the ST 2 Path 5 sensor.	5-90
	E0AF	Paper On Paper Path ST14 (ST2 Path 6)	A paper is on the ST 2 Path 6 sensor.	5-90
	E0B0	Paper On Paper Path ST15 (ST2 Lower Jam)	A paper is on the ST 2 Lower Jam sensor.	5-95
	E0B1	Paper On Paper Path ST16 (ST2 Upper Jam)	A paper is on the ST 2 Upper Jam sensor.	5-95
	E0B2	Paper On Paper Path ST17 (FTU Path1)	A paper is on the FTU Path1 sensor.	5-98
	E0B3	Paper On Paper Path ST18 (FTU Path2)	A paper is on the FTU Path2 sensor.	5-98
	E0BA	Paper Size Unmatch (Build-in Hopper Lower)	The paper size of the build-in hopper lower is different from that designated by the CE.	5-99
	E0BB	Build-in HP Lower Paper Height Error	A paper is on the Build-in HP Lower P-Top Sensor and Build-in HP Lower Table Low Limit Sensor.	5-103
	E0BC	Paper Size Unmatch (Build-in Hopper Upper)	The paper size of the build-in hopper upper is different from that designated by the CE.	5-99
	E0BD	Build-in HP Upper Paper Height Error	A paper is on the Build-in HP Upper P-Top Sensor and Build-in HP Upper Table Low Limit Sensor.	5-105
	E0BE	Paper Size Unmatch (AHP1 Lower)	The paper size of the AHP1 Lower is different from that designated by the CE.	5-107
	E0BF	AHP Lower Paper Height Error (AHP1 Lower)	A paper is on the AHP1 Lower P-Top Sensor and AHP1 Lower Table Low Limit Sensor.	5-111
	EOCO	Paper Size Unmatch (AHP1 Upper)	The paper size of the AHP1 Upper is different from that designated by the CE.	5-107
	E0C1	AHP Upper Paper Height Error (AHP1 Upper)	A paper is on the AHP1 Upper P-Top Sensor and AHP1 Upper Table Low Limit Sensor.	5-113
	E0C2	Paper Size Unmatch (AHP2 Lower)	The paper size of the additional hopper lower is different from that designated by the CE.	5-115
	E0C3	AHP2 Lower Paper Height Error (AHP2 Lower)	A paper is on the AHP2 Lower P-Top Sensor and AHP2 Lower Table Low Limit Sensor.	5-119
	E0C4	Paper Size Unmatch (AHP2 Upper)	The paper size of the additional hopper lower is different from that designated by the CE.	5-115
	E0C5	AHP2 Upper Paper Height Error	A paper is on the AHP2 Upper P-Top Sensor and AHP2 Upper Table Low Limit Sensor.	5-121
	E0C8	Paper Size Unmatch (ST1 Lower)	The paper size of the stacker 1 lower is different from that designated by the CE.	5-123

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Model: EMP156

Date: 1-Jun-07

No.: RG155020

### Pg.5-12

Table 5-3. Detail Error Code

Detail Error Code	Error Name	Description	Page No.
E11E	Input Station Feed Jam 15 (CCD2)	The paper did not get the CCD 2 within the specified time.	
E120 AHP Jam 1 (AHP1 ISV)		The paper did not get to the AHP 1 ISV sensor of the additional hopper within the specified time.	5-153
E121	AHP Jam 2 (AHP1 ISV)	am 2 (AHP1 ISV) A paper jamming occurred on the AHP 1 ISV sensor of the additional hopper.	
E122	AHP Jam 3 (AHP1 ISH)	The paper did not get to the AHP 1 ISH sensor of the additional hopper within the specified time.	5-156
E123	AHP Jam 4 (AHP1 ISH)	A paper jamming occurred on the AHP 1 ISH sensor of the additional hopper.	5-156
E124	AHP Jam 5 (AHP1 OUT)	Paper did not arrive at the AHP 1 OUT Sensor of the additional hopper within the specified time.	5-159
E125	AHP Jam 6 (AHP1 OUT)	A paper jamming occurred on the AHP 1 Out sensor of the additional hopper.	5-159
E126	AHP Jam 7 (AHP1 Joint Path)	The paper did not get to the Joint Path sensor of the additional hopper within the specified time.	5-162
E127	7 AHP Jam 8 (AHP1 Joint Path) A paper jamming occurred on the Joint Path sense the additional hopper.		5-162
E128	AHP Jam 9 (AHP2 ISV)	HP Jam 9 (AHP2 ISV) The paper did not get to the AHP 2 ISV sensor of the additional hopper within the specified time.	
E129	AHP Jam 10 (AHP2 ISV)	A paper jamming occurred on the AHP 2 ISV sensor of the additional hopper.	5-165
E12A	AHP Jam 11 (AHP2 ISH)	The paper did not get to the AHP 2 ISH sensor of the additional hopper within the specified time.	5-167
E12B	AHP Jam 12 (AHP2 ISH)	A paper jamming occurred on the AHP 2 ISH sensor of the additional hopper.	5-167
E12C	AHP Jam 13 (AHP2 OUT)	The paper did not get to the AHP 2 OUT sensor of the additional hopper within the specified time.	5-169
E12D	AHP Jam 14 (AHP2 OUT)	A paper jamming occurred on the AHP 2 OUT sensor of the additional hopper	5-169
E12E	N/A		
E12F	N/A		
E150	Double Feed 1 (Build-in Hopper Lower)	The former sheet from the build-in hopper lower was the paper which overlapped two sheets.	5-173
E151	Double Feed 2 (Build-in Hopper Lower)	The current sheet from the build-in hopper lower was the paper which overlapped two sheets.	5-173
E152	Double Feed 3 (Build-in Hopper Upper)	The former sheet from the build-in hopper upper was the paper which overlapped two sheets.	5-173
E153	Double Feed 4 (Build-in Hopper Upper)	The current sheet from the build-in hopper upper was the paper which overlapped two sheets.	5-173
E154	Double Feed 5 (AHP1 Lower)	The former sheet from the additional hopper lower was the paper which overlapped two sheets.	5-173
E155	Double Feed 6 (AHP1 Lower)	The current sheet from the additional hopper lower was the paper which overlapped two sheets.	5-173
E156	Double Feed 7 (AHP1 Upper)	The former sheet from the additional hopper upper was the paper which overlapped two sheets.	5-173

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Model: EMP156

Date: 1-Jun-07

No.: RG155020

### Pg. 5-14

Table 5-3. Detail Error Code

Detail Error Code	Error Name	Description	Page No.
E18D	SB Jam 1	The paper did not get to the Switch Back sensor within the specified time.	5-203
E18E	SB Jam 2	A paper jamming occurred on the Switch Back sensor.	5-203
E190	Return Feed Jam 1 (Return 1)	The paper did not get to the Return Feed 1 sensor within the specified time.	5-206
E191	Return Feed Jam 2 (Return 1)	A paper jamming occurred on the Return Feed 1 sensor.	5-206
E192	Return Feed Jam 3 (Return 2)	The paper did not get to the Return Feed 2 sensor within the specified time.	5-209
E193	Return Feed Jam 4 (Return 2)	A paper jamming occurred on the Return Feed 2 sensor.	5-209
E1A0	Build-in Hopper Lower Pick Jam 1	A paper did not be picked from the build-in hopper lower.	5-212
E1A1	Build-in Hopper Lower Pick Jam 2	A paper from the build-in hopper lower did not be fed after picking.	5-212
E1A2	Build-in Hopper Lower Pick Jam 3	A paper from the build-in hopper lower was fed through the Pick 1 sensor too fast.	5-212
E1A3	Build-in Hopper Upper Pick Jam 1	A paper did not be picked from the build-in hopper upper.	5-212
E1A4	Build-in Hopper Upper Pick Jam 2	A paper from the build-in hopper upper did not be fed after picking.	5-212
E1A5	Build-in Hopper Upper Pick Jam 3	A paper from the build-in hopper upper was fed through the Pick 2 sensor too fast.	5-212
E1A6	AHP1 Lower Pick Jam 1	A paper did not be picked from the lower additional hopper.	5-217
E1A7	AHP1 Lower Pick Jam 2	A paper from the additional hopper lower did not be fed after picking.	5-217
E1A8	AHP1 Lower Pick Jam 3	A paper from the additional hopper lower was fed through the Pick 3 sensor too fast.	5-217
E1A9	AHP1 Upper Pick Jam 1	A paper did not be picked from the additional hopper upper.	5-217
E1AA	AHP1 Upper Pick Jam 2	A paper from the additional hopper upper did not be fed after picking.	5-217
E1AB	AHP1 Upper Pick Jam 3	A paper from the additional hopper upper was fed through the Pick 4 sensor too fast.	5-217
E1AF	AHP2 Lower Pick Jam 1	A paper did not be picked from the lower additional hopper.	5-221
E1B0	AHP2 Lower Pick Jam 2	A paper from the additional hopper lower did not be fed after picking.	5-221
E1B1	AHP2 Lower Pick Jam 3	A paper from the additional hopper lower was fed through the Pick 3 sensor too fast.	5-221
E1B2	AHP2 Upper Pick Jam 1	A paper did not be picked from the upper additional hopper.	5-221
E1B3	AHP2 Upper Pick Jam 2	A paper from the additional hopper upper did not be fed after picking.	5-221

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Model: EMP156

Date: 1-Jun-07

No.: RG155020

### Pg. 5-15

Table 5-3. Detail Error Code

Detail Error Code	Error Name Description		Page No.	
E1B4	AHP2 Upper Pick Jam 3	A paper from the additional hopper upper was fed through the Pick 3 sensor too fast.	5-221	
E1C0	Stacker Jam 1 (ST1 PATH 1 Jam)	The paper did not get to the ST1 PATH 1 Jam sensor within the specified time.	5-221	
E1C1	Stacker Jam 2 (ST1 PATH 1 Jam)	A paper jamming occurred on the ST1 PATH 1 Jam sensor.	5-221	1
E1C2	Stacker Jam 3 (ST1 PATH 2 Jam)	The paper did not get to the ST1 PATH 2 Jam sensor within the specified time.	5-226	1
E1C3	Stacker Jam 4 (ST1 PATH 2 Jam)	A paper jamming occurred on the ST1 PATH 2 Jam sensor.	5-226	
E1C4	Stacker Jam 5 (ST1 PATH 3 Jam)	The paper did not get to the ST1 PATH 3 Jam sensor within the specified time.	5-229	1
E1C5	Stacker Jam 6 (ST1 PATH 3 Jam)	A paper jamming occurred on the ST1 PATH 3 Jam sensor.	5-229	
E1C6	Stacker Jam 7 (Stacker 1 lower Jam)	The paper did not get to the stacker 1 lower Jam sensor within the specified time.	5-231	
E1C7	Stacker Jam 8 (Stacker 1 lower Jam)	A paper jamming occurred on the stacker 1 lower Jam sensor.	5-231	
E1C8	Stacker Jam 9 (ST1 PATH 4 Jam)	The paper did not get to the ST1 PATH 4 Jam sensor within the specified time.	5-234	
E1C9	Stacker Jam 10 (ST1 PATH 4 Jam)	A paper jamming occurred on the ST1 PATH 4 Jam sensor.	5-234	
E1CA	Stacker Jam 11 (Stacker 1 upper Jam)	The paper did not get to the Stacker 1 upper Jam sensor within the specified time.	5-237	
E1CB	Stacker Jam 12 (Stacker 1 upper Jam)	A paper jamming occurred on the Stacker 1 upper Jam sensor.	5-237	
E1CC	Stacker Jam 13 (ST1 PATH 5 Jam)	The paper did not get to the ST1 PATH 5 Jam sensor within the specified time.	5-240	
E1CD	Stacker Jam 14 (ST1 PATH 5 Jam)	A paper jamming occurred on the ST1 PATH 5 Jam sensor.	5-240	
E1CE	Stacker Jam 15 (ST1 PATH 6 Jam)	The paper did not get to the ST1 PATH 6 Jam sensor within the specified time.	5-243	
E1CF	Stacker Jam 16 (ST1 PATH 6 Jam)	A paper jamming occurred on the ST1 PATH 6 Jam sensor.	5-243	
E1D0	Stacker Jam 17 (ST2 PATH 1 Jam)	The paper did not get to the ST2 PATH 1 Jam sensor within the specified time.	5-246	1
E1D1	Stacker Jam 18 (ST2 PATH 1 Jam)	A paper jamming occurred on the ST2 PATH 1 Jam sensor.	5-246	
E1D2	Stacker Jam 19(ST2 PATH 2 Jam)	The paper did not get to the ST2 PATH 2 Jam sensor within the specified time.	5-249	1
E1D3	Stacker Jam 20 (ST2 PATH 2 Jam)	A paper jamming occurred on the ST2 PATH 2 Jam sensor.	5-249	
E1D4	Stacker Jam 21 (ST2 PATH 3 Jam)	The paper did not get to the ST2 PATH 3 Jam sensor within the specified time.	5-252	
E1D5	Stacker Jam 22 (ST2 PATH 3 Jam)	A paper jamming occurred on the ST2 PATH 3 Jam sensor.	5-252	

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Error Code	Error Name	Description	Page No.
E2D2	Gate Position Error	The initial position signal of the gate has been on or off.	5-349
E2D4	FLIP Open/Close Position Error	The initial position signal of the flip Open/Close has been on or off.	5-350
E2D8	Transfer Belt Position Error	The initial position signal of the transfer belt has been on or off.	5-351
E310	Heater 1 Lamp Off	The heater lamp 1 did not turn on.	5-352
E311	Heater 2 Lamp Off	The heater lamp 2 did not turn on.	5-356
E312	Heater 1 Sensor Error	The temperature sensor of the heater lamp 1 is abnormal.	5-353
E313	Heater 2 Sensor Error	The temperature sensor of the heater lamp 2 is abnormal.	5-357
E316	Heater 1 Over Temperature	The heater 1 overheated.	5-354
E317	Heater 2 Over Temperature	The heater 2 overheated.	5-358
E318	Heater 1 Ready Timeout	The heater 1 did not reach to the specified temperature within the specified time.	5-355
E319	Heater 1 Low Temp	The temperature of the heater 1 is too low.	5-355
E31A Heater 2 Ready Timeout		The heater 2 did not reach to the specified temperature within the specified time.	5-359
E31B	Heater 2 Low Temp	The temperature of the heater 2 is too low.	5-359
31C	HR Motor Error	The HR motor did not rotate normally.	
E330	Erase LED1 Off	The erase LED 1 did not turn on.	5-362
E331	Erase LED2 Off	The erase LED 2 did not turn on.	5-362
E332	Erase LED3 Off	The erase LED 3 did not turn on.	5-362
E333	Erase LED4 Off	The erase LED 4 did not turn on.	5-362
340	Paper Size Senser Error 1	The paper size censor of the build in hopper lower was abnormal.	5 364
E341	Paper Size Sensor Error 2	The paper size sensor of the build-in hopper upper was abnormal.	5-364
342	Paper Size Sensor Error 3	The paper size sensor of the lower additional hopper 1 was abnormal.	5-366
2343	Paper Size Sensor Error 4	The paper size sensor of the upper additional hopper 1 was abnormal.	5-366
345	Paper Size Sensor Error 6	The paper size sensor of the lower additional hopper 2 was abnormal.	5-268
E340	Paper Size Sensor Error 7	The paper size sensor of the upper additional hopper 2 was abnormal.	5 368
E350	Blower Alarm	The blower is abnormal.	5-370
E351	Blower Alarm2	The pressure sensor detected the abnormalities in the air pressure of the blower.	5-372
E355	OC Cool FAN Alarm	The OC cool fan is abnormal.	5-374
E356	LD Cool FAN Alarm	The LD cool fan is abnormal.	5-375

The charger duct fan is abnormal.

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Table 5-15. Sensor corresponding to error codes, Sensor Test 1 6.7, 6-12

Item No.	Error	or Corresponding Sensor		Soneor Test	Maintenance
nem No.	Code	Sensor No.	Sensor Name	Selisor rest	Ref + Page
(1)	E089	S589	AHP Vertical Path	AHP10 2 <sup>6</sup>	7.8.5.5, 7-664
(2)	E08A	S590	AHP Through Path1	AHP10 2 <sup>3</sup>	7.8.4.1, 7-649
(3)	E08B	S591	AHP Through Path2	AHP102 <sup>2</sup>	7.8.4.1, 7-649
(4)	E08C	S588	AHP Joint Path	AHP10 2 <sup>7</sup>	7.8.4.1, 7-649
(5)	E08D	S589	AHP2 Vertical Path	AHP1D 2 <sup>1</sup>	7.8.5.5, 7-664
(6)	E08E	S590	AHP2 Through Path1	AHP1D 2 <sup>4</sup>	7.8.5.5, 7-664
(7)	E08F	S591	AHP2 Through Path2	AHP1C 2 <sup>5</sup>	7.8.5.5, 7-664
(9)	E000	9500	AHP2 Joint Path2		78557664
(3)	2000	0000		700 102	1.0.0.0, 1.004

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### 5.3.75. AHP JAM 9 (AHP2 VERTICAL PATH) (E128) AHP JAM 10 (AHP2 VERTICAL PATH) (E129)

PF	PRIMARY FACTOR; 1. Paper did not arrive at AHP2 VERTICAL PATH sensor of the auxiliary hopper.(E128) 2. Paper did not depart from AHP2 VERTICAL PATH sensor of the auxiliary hopper. (E129)						
	PHENOMENON	CA	USES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1.	Paper jam occurred.	1.	Paper, paper path is contaminated.	Remove: Piece of paper, dirt, etc.,			
		2.	Foreign objects are on the paper path.	Clean: Paper path			
		3.	Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace: Corresponding Paper Guide			
		4.	Roller wear before and behind the AHP2 Vertical Path sensor, also pressure faults.	Replace: Roller			
		5.	Poor rotation of the motor by load fault.	Check: AHP2 Lower Feed Motor (M524), and load.			
		6.	Motor fault.	Check: by Driver Test 1 "21"	Driver Test 16.3, 6-5		
				Replace: AHP2 Lower Feed Motor (M524)	7.8.5.2, 7-660		
		7.	PCB fault.	Replace: HP12X Assembly	7.6.1.9, 7-388		
		8.	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-90 on page 5-166		
2.	Error is detected although the	1.	AHP2 Vertical Path sensor is contaminated.	Remove: Piece of paper, dirt, etc.,			
	occur.	2.	AHP2 Vertical Path Sensor faults.	Check: By Sensor Test 1 "AHP1D 2 <sup>1</sup> "	Sensor Test 1 6.7, 6-12		
				Replace:AHP2 Vertical Path Sensor (S589)	7.8.5.5, 7-664		
		3.	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-90 on page 5-166		

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#### 5.3.76. AHP JAM 11 (AHP2 THROUGH PATH1) (E12A) AHP JAM 12 (AHP2 THROUGH PATH1) (E12B)

PF	RIMARY FACTOR;	1. P 2. P	aper did not arrive at AHP aper did not depart from A	ary hopper.(E12A) Ixiliary hopper. (E12B)		
	PHENOMENON	CA	USES & CHECK POINTS		CORRECTIONS	Maintenance Ref + Page
1.	Paper jam occurred.	1.	Paper path is contaminated.	Remove:	Piece of paper, dirt, etc.,	
		2.	Foreign objects are on the paper path.	Clean: Pa	aper path	
		3.	Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace:	Corresponding Paper Guide	
		4.	Roller wear before and behind the AHP2 Through Path1 sensor, also pressure fault.	Replace:	Roller	
		5.	Poor rotation of the motor by load fault.	Check:	AHP2 Upper Feed Motor (M525), AHP2 Joint Feed Motor (M527), and load.	
		6.	Motor fault.	Check:	by Driver Test 1 "23" (AHP2 Upper Feed Motor) by Driver Test 1 "24" (AHP2 Joint Feed Motor)	Driver Test 1 6.3, 6-5
				Replace:	AHP2 Upper Feed Motor (M525) or AHP2 Joint Feed Motor (M527)	7.8.5.1, 7-659 7.8.4.2, 7-650
		7.	PCB fault.	Replace:	HP12X Assembly	7.6.1.9, 7-388
		8.	Poor connection of connectors, or cable damaged.	Repair the connector	e cables or reset the r in the correct position.	Figure 5-91 on page 5-168
2.	Error is detected although the	1.	AHP2 Through Path1 sensor is contaminated.	Remove:	Piece of paper, dirt, etc.,	
	occur.	2.	AHP2 Through Path1 sensor fault.	Check: By 2 <sup>4</sup> "	y Sensor Test 1 "AHP1D	Sensor Test 1 6.7, 6-12
				Replace:/	AHP2 Through Path1 sensor (S590)	7.8.4.1, 7-649
		3.	Poor connection of connectors, or cable damaged.	Repair the connector	e cables or reset the r in the correct position.	Figure 5-91 on page 5-168



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### 5.3.77. AHP JAM 13 (AHP2 THROUGH PATH2) (E12C) AHP JAM 14 (AHP2 THROUGH PATH2) (E12D)

PR	IMARY FACTOR;	1. Paper did not arrive at AHP2 THROUGH PATH2 sensor of the auxiliary hopper.(E12C) 2. Paper did not depart from AHP2 THROUGH PATH2 sensor of the auxiliary hopper. (E12D)					
F	PHENOMENON	CA	USES & CHECK POINTS	CORRECTIONS Maintenance Ref + Page			
1.	Paper jam occurred.	1.	Paper, paper path is contaminated.	Remove: Piece of paper, dirt, etc.,			
		2.	Foreign objects are on the paper path.	Clean: Paper path			
		3.	Paper conveyance course is changing. Or there is a scratch causing the paper to travel incorrectly.	Replace: Corresponding Paper Guide			
		4.	Roller wear before and behind the AHP2 Through Path2 sensor, also pressure faults.	Replace: Roller			
		5.	Poor rotation of the motor by load fault.	Check: AHP2 Through Path2 Feed Motor (M530), and load.			
		6.	Motor fault.	Check: by Driver Test 1 "26" Driver Test 1 6.3, 6-5			
				Replace: AHP2 Through Path2 Feed Motor (M530) 7.8.4.2, 7-650			
		7.	PCB fault.	Replace: HP12X Assembly 7.6.1.9, 7-388			
		8.	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position. Figure 5-92 on page 5-170			
2.	Error was detected although	1.	AHP2 Out sensor is contaminated.	Remove: Piece of paper, dirt, etc.,			
	not occur.	2.	AHP2 Through Path2 Sensor fault.	Check: by Sensor Test 1 "AHP1C Sensor Test 1 2 <sup>5</sup> " Sensor Test 1 6.7, 6-12			
				Replace:AHP2 Through Path2 7.8.4.1, 7-649 Sensor (\$591)			
		3.	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position. Figure 5-92 on page 5-170			

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Troubleshooting 5-169



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## Pg. 5-181

PRIMARY FACTOR;	1. Paper Skews from BUILD-IN HOPPER LOWER. (E170) 2. Paper Skews from BUILD-IN HOPPER UPPER. (E171) 3. Paper Skews from AHP1 LOWER. (E172) 4. Paper Skews from AHP1 UPPER. (E173) 5. Paper Skews from AHP2 LOWER. (E175) 6. Paper Skews from AHP2 UPPER. (E176) 7. Paper Skews from RETURN. (E178)			
	<ol> <li>(8) Attachment of the Vertical Path is not perpendicular.</li> <li>(9) Regist Cover attachment fault. Hinge part is faulty.</li> <li>(10) Conveyance force balance of the Regist part is incorrect.</li> <li>Rubber Roll Shaft of the Regist Unit is contaminated.</li> <li>Rubber Roll Shaft is partially worn.</li> <li>Spring of the roller of the Regist Unit is not correctly attached.</li> <li>(11) Paper path surface is contaminated.</li> <li>(12) The amount of reversal of Regist Roller is faulty.</li> </ol>	Attachment: Vertical Path Check: Regist Cover Clean: Roller Replace: Roller Attach: Spring Clean: Paper path surface, rollers, etc. Adjust the amount of reversal of Regist Roller.	7.10.12, 7-721	
	3. Sensor attachment fault. The position of the Skew Sensor has shifted.	Check: Sensor		
2. Paper skew occurs. (E178)	<ol> <li>Skew occurred.         <ol> <li>Conveyance force balance of the Convey- ance part is incorrect. Rubber Roll is contaminated, or partially worn.</li> <li>Spring of the Pressure Roller is not correctly attached.</li> <li>Fuser Assembly fault. Heat Roll, Backup Roll is partially worn.</li> <li>Conveyance force balance of the Regist Unit is incorrect. Rubber Roll Shaft of the Regist Unit is contaminated, or partially worn.</li> <li>Spring of the roller of the Regist Unit is not correctly attached.</li> <li>Spring of the Open Paper Guide (2) is not correctly attached.</li> </ol> </li> </ol>	Clean: Roller Replace: Roller Attach: Spring Replace: Fuser Assembly Check: Fuser Assembly Clean: Roller Replace: Roller Attach: Spring Clean: Paper path surface.		



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## Pg. 5-182

PRIMARY FACTOR;	<ol> <li>Paper Skews from BUILD-IN HOPPER LOWER. (E170)</li> <li>Paper Skews from BUILD-IN HOPPER UPPER. (E171)</li> <li>Paper Skews from AHP1 LOWER. (E172)</li> <li>Paper Skews from AHP1 UPPER. (E173)</li> <li>Paper Skews from AHP2 LOWER. (E175)</li> <li>Paper Skews from AHP2 UPPER. (E176)</li> <li>Paper Skews from RETURN. (E178)</li> </ol>				
2. Paper skew occurs. (E178)	<ol> <li>(4) Foreign substances are on the surface of the paper path.</li> <li>(5) In thin papers, the curl of the return paper is large.</li> <li>(6) The amount of reversal of Regist Roller is faulty.</li> </ol>	Adjust the amount of reversal of Regist Roller. Adjust the amount of reversal of Regist Roller.	7.10.12, 7-721 7.10.12, 7-721		
<ol> <li>Paper skew has not occurred.</li> </ol>	<ol> <li>Sensor detected paper jam error. Chad, or dust on the sensor window of the Skew Sensor, and its environs. Sensor attachment fault.</li> </ol>	Clean: Sensor, and its environs. Adjust: Sensor attachment.			
	<ol> <li>Detected sensor error. Piece of paper is put in front of the sensor window, and CHECK RESET is carried out. (Since it initializes by the Regist Roller rotation, it is made for a piece of paper not to fall.) Normally, if the above operation is carried out, it is set to PAPER ON PAPER PATH. Error at the time of normal Sensor name Error Code S803 E05B S804 E05C Does not become PAPER ON PAPER PATH.</li> </ol>	Replace: Sensor Skew Sensor 1 (S803) Skew Sensor 2 (S804) CP63X Assembly	7.3.3.15, 7-243 7.3.3.15, 7-243 7.6.1.7, 7-386		
<ol> <li>Skew occurs though it has not</li> </ol>	1. Refer to previous page.				
been detected.	2. Refer to detected sensor error.				
Mechanical location of	Motors, Sensors, etc., refer to Fig	jure 5-96 on page 5-179.			



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## Pg. 5-197

### 5.3.85. PAPER FEED OUT1 JAM 1 (E186) PAPER FEED OUT1 JAM 2 (E187)

PRIMARY FACTOR;	Paper does not arrive at PF Out1 Sensor. (E186) Paper does not depart from PF Out1 Sensor. (E187) * * End of the previous page is not detected to the timing to which the leading edge of the following page reaches the sensor.					
PHENOMENON	C/	AUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Paper jam occurs.	1.	Paper dog-eared.	Check: Dog-eared reason.	5.6, 5-499 Check jam obstacles.		
	2.	Paper, paper path is contaminated.	Remove: Piece of paper, dirt, etc.,			
	3.	Paper fault. Check whether the paper curve in the hopper is not too large, or the curvature of the paper after passing the Fuser Assembly is not too large.	Replace: Paper	7.3.2.11,7-206		
	4.	Motor fault.	Check: By Driver Test 1 "14" and "15".	Driver Test 1 6.3, 6-5		
			Replace: PF Out Motor (M306)	7.3.2.4, 7-199		
	5.	PCB fault.	Replace: DV14X Assembly	7.6.1.8, 7-387		
<ol> <li>An obstacle is detected although a paper jam does</li> </ol>	1.	Sensor surface, or surroundings are contaminated.	Clean: PF Out1 Sensor (S305) and its surroundings.			
not occur.	2.	Sensor fault.	Check: By Sensor Test 1 "PR13 20"	Sensor Test 1 6.7, 6-12		
			Replace: PF Out1 Sensor (S305)	7.3.1.9, 7-170		
	3.	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-110 on page 5-198		
Mechanical location of	Moto	rs, Sensors, etc., refer to Fig	ure 5-111 on page 5-199.			

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Pg. 5-221

5.3.90.	AHP1 LOWER PICK JAM 1 (E1A6)
	AHP1 LOWER PICK JAM 2 (E1A7)
	AHP1 LOWER PICK JAM 3 (E1A8)
	AHP1 UPPER PICK JAM 1 (E1A9)
	AHP1 UPPER PICK JAM 2 (E1AA)
	AHP1 UPPER PICK JAM 3 (E1AB)

PRIMARY FACTOR;	<ol> <li>Paper from AHP1 Lower does not arrive at AHP1 Lower pick sensor. (E1A6)</li> <li>Paper from AHP1 Upper does not arrive at AHP1 Upper pick sensor. (E1A9)</li> <li>Paper from AHP1 Lower does not depart from AHP1 Lower pick sensor. (E1A7)*</li> <li>Paper from AHP1 Upper does not depart from AHP1 Upper pick sensor. (E1AA)*</li> <li>* Trailing edge of the preceeding page is not detected to the timing to which the paper of the following page reaches the sensor.</li> <li>AHP1 Lower pick sensor passage of the paper from AHP1 Lower is too early. (E1A8)</li> <li>AHP1 Lower pick sensor passage of the paper from AHP1 Lower is too early. (E1A8)</li> </ol>							
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page					
<ol> <li>There is no paper. (paper empty undetected)</li> </ol>	<ol> <li>Empty Sensor is fault.</li> <li>(1) AHP Lower Hopper AHP Lower Hopper Empty Sensor is fault.</li> <li>(2) AHP Upper Hopper AHP Upper Hopper Empty Sensor is fault</li> </ol>	Check: AHP Lower Empty Sensor (S573) Function by Sensor Test 1 "AHP13 2 <sup>5</sup> " Check: AHP Upper Empty Sensor (S582) Function by Sensor Test 1 "AHP12 2 <sup>7</sup> "	Sensor Test 1 6.7, 6-12					
	Empty Sensor is rauit.	Replace: AHP Lower Empty Sensor (S573) Replace: AHP Upper Empty Sensor (S582)	7.8.5.3, 7-661 7.8.2.5, 7-597					
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-121 on page 5-220					
2. No pick of paper.	<ol> <li>Motor fault.         <ol> <li>AHP Lower Hopper</li> <li>AHP Lower Pick Motor</li> <li>AHP Lower Feed Motor</li> <li>AHP Lower Hopper</li> <li>AHP Upper Pick Motor</li> <li>AHP Upper Feed Motor</li> </ol> </li> </ol>	Check: AHP Lower Pick Motor (M521) Function by Driver Test 1 "AHP 00" Check: AHP Lower Feed Motor (M524) Function by Driver Test 1 "AHP 01" Check: AHP Upper Pick Motor (M522) Function by Driver Test 1 "AHP 02" Check: AHP Upper Feed Motor (M525) Function by Driver Test 1 "AHP 03"	Driver Test 1 6.3, 6-5					
		Replace: AHP Lower Pick Motor (M521) Replace: AHP Lower Feed Motor (M524) Replace: AHP Upper Pick Motor (M522) Replace: AHP Upper Feed Motor (M525)	7.8.5.2, 7-660 7.8.5.1, 7-659					
	2. PCB fault.	Replace: HS10X Assembly	7.8.2.21, 7-616					
	<ol> <li>Table(AP) Assembly is not level.</li> </ol>	Adjust to level Table(AP) Assembly.	7.8.3.8, 7-631					

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F	RIMARY FACTOR;	<ol> <li>Paper from AHP1 Lower does not arrive at AHP1 Lower pick sensor. (E1A6)</li> <li>Paper from AHP1 Upper does not arrive at AHP1 Upper pick sensor. (E1A9)</li> <li>Paper from AHP1 Lower does not depart from AHP1 Lower pick sensor. (E1A7)*</li> <li>Paper from AHP1 Upper does not depart from AHP1 Upper pick sensor. (E1AA)*</li> <li>* Trailing edge of the preceeding page is not detected to the timing to which the paper of the following page reaches the sensor.</li> <li>AHP1 Lower pick sensor passage of the paper from AHP1 Lower is too early. (E1A8)</li> <li>AHP1 Lower pick sensor passage of the paper from AHP1 Lower is too early. (E1A8)</li> </ol>					
2.	continued.	4.	AHP Pick Blower is fault.	Check: AHP Pick Blower (B502) Function by Driver Test 1 "43"	Driver Test 1 6.3, 6-5		
				Replace: AHP Pick Blower (B502)	7.8.2.17, 7-610		
		5.	Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-121 on page 5-220		
		6.	Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.10.3, 7-692 7.10.9, 7-712		
3.	No pick of paper, or reaching the sensor overdue.	1.	Inclination of table is incorrect (Poor degree of levelness).	Adjust: Wire to level.	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631		
		2.	Paper fault. Paper is contaminated, or torn, or skewed.	Replace: Paper. Check: Paper in Hopper.			
		3.	Paper Size Guide position attachment fault.	Check: Paper size guide.			
		4.	The height of hopper Table is incorrect.	Adjustment: The height of the hopper Table	7.8.3.8, 7-631		
		5.	Air pressure is incorrect.	Adjustment: Air pressure	Driver Test 2 6.4, 6-10		
4.	Paper does not arrive at the hopper feed roller.	1.	Paper is caught in the Paper Guide, etc., Paper Guide is separated.	Check: Paper Guide attachment.			
		2.	An obstacle is blocking the paper path(piece of paper, etc.,).	Check: Paper path.			
		3.	Conveyance ability of a roller of the hopper fault. Pressure spring is unfastened(or damaged).	Replace: Roller, Pressure Spring.			
5.	Paper is on the sensor.	1.	Contamination of the sensor window, and its environs.	Clean: AHP Lower Pick Sensor (S570), AHP Upper Pick Sensor (S579), and its environs.			
		2.	Sensor fault. (1) AHP Lower Pick Sensor is fault. (2) AHP Upper Pick Sensor is fault.	Check: AHP Lower Pick Sensor is fault (S570) Function by Sensor Test 1 "AHP 12 2 <sup>0</sup> ". Check: AHP Upper Pick Sensor is fault (S579) Function by Sensor Test 1 "AHP 11 2 <sup>2</sup> ".	Sensor Test 1 6.7, 6-12		
				Replace: AHP Lower Pick Sensor is fault (S570). Replace: AHP Upper Pick Sensor is fault (S579).	7.8.5.4, 7-663 7.8.5.3, 7-661		

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2. Add the following table after page 5-222.

5.3.91. AHP2 LOWER PICK JAM 1 (E1AF) AHP2 LOWER PICK JAM 2 (E1B0) AHP2 LOWER PICK JAM 3 (E1B1) AHP2 UPPER PICK JAM 1 (E1B2) AHP2 UPPER PICK JAM 2 (E1B3) AHP2 UPPER PICK JAM 3 (E1B4)

PRIMARY FACTOR;	<ol> <li>Paper from AHP2 Lower does not arrive at AHP2 Lower pick sensor. (E1AF)</li> <li>Paper from AHP2 Upper does not arrive at AHP2 Upper pick sensor. (E1B2)</li> <li>Paper from AHP2 Lower does not depart from AHP2 Lower pick sensor. (E1B0)*</li> <li>Paper from AHP2 Upper does not depart from AHP2 Loper pick sensor. (E1B3)*</li> <li>* Trailing edge of the preceeding page is not detected to the timing to which the paper of the following page reaches the sensor.</li> <li>AHP2 Lower pick sensor passage of the paper from AHP2 Lower is too early. (E1B1)</li> <li>AHP2 Lower pick sensor passage of the paper from AHP2 Lower is too early. (E1B4)</li> </ol>							
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page					
<ol> <li>There is no paper. (paper empty undetected)</li> </ol>	<ol> <li>Empty Sensor is fault.</li> <li>(1) AHP2 Lower Hopper AHP2 Lower Hopper Empty Sensor is fault.</li> <li>(2) AHP2 Upper Hopper AHP2 Upper Hopper Empty Sensor is fault</li> </ol>	Check: AHP2 Lower Empty Sensor (S573) Function by Sensor Test 1 "AHP17 2 <sup>7</sup> " Check: AHP2 Upper Empty Sensor (S582) Function by Sensor Test 1 "AHP19 2 <sup>7</sup> "	Sensor Test 1 6.7, 6-12					
	Empty Sensor is radii.	Replace: AHP2 Lower Empty Sensor (S573) Replace: AHP2 Upper Empty Sensor (S582)	7.8.5.3, 7-661 7.8.2.5, 7-597					
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-122 on page 5-224					
2. No pick of paper.	<ol> <li>Motor fault.         <ol> <li>AHP2 Lower Hopper</li> <li>AHP2 Lower Pick Motor</li> <li>AHP2 Lower Feed Motor</li> <li>AHP2 Lower Hopper</li> <li>AHP2 Upper Pick Motor</li> <li>AHP2 Upper Feed Motor</li> </ol> </li> </ol>	Check: AHP2 Lower Pick Motor (M521) Function by Driver Test 1 "AHP 20" Check: AHP2 Lower Feed Motor (M524) Function by Driver Test 1 "AHP 21" Check: AHP2 Upper Pick Motor (M522) Function by Driver Test 1 "AHP 22" Check: AHP2 Upper Feed Motor (M525) Function by Driver Test 1 "AHP 23" Replace: AHP2 Lower Pick Motor (M521)	Driver Test 1 6.3, 6-5					
		Replace: AHP2 Lower Feed Motor (M524) Replace: AHP2 Upper Pick Motor (M522) Replace: AHP2 Upper Feed Motor (M525)	7.8.5.2, 7-660					
	2. PCB fault.	Replace: HP12X Assembly	7.8.2.26, 7-621					
	<ol> <li>Table(AP) Assembly is not level.</li> </ol>	Adjust to level Table(AP) Assembly.	7.8.3.8, 7-631					

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PRIMARY FACTOR	; 1. 2.   3.   4.   5. / 6. /	<ol> <li>Paper from AHP2 Lower does not arrive at AHP2 Lower pick sensor. (E1AF)</li> <li>Paper from AHP2 Upper does not arrive at AHP2 Upper pick sensor. (E1B2)</li> <li>Paper from AHP2 Lower does not depart from AHP2 Lower pick sensor. (E1B0)*</li> <li>Paper from AHP2 Upper does not depart from AHP2 Upper pick sensor. (E1B3)*</li> <li>* Trailing edge of the preceding page is not detected to the timing to which the paper of the following page reaches the sensor.</li> <li>AHP2 Lower pick sensor passage of the paper from AHP2 Lower is too early. (E1B1)</li> <li>AHP2 Lower pick sensor passage of the paper from AHP2 Lower is too early. (E1B4)</li> </ol>				
2. continued.	4.	AHP Pick Blower is fault.	Check: AHP2 Pick Blower (B502) Function by Driver Test 1 "PR 44"	Driver Test 1 6.3, 6-5		
			Replace: AHP2 Pick Blower (B502)	7.8.2.17, 7-610		
	5.	Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-122 on page 5-224		
	6.	Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.10.3, 7-692 7.10.9, 7-712		
<ol> <li>No pick of paper, or reaching the sensor overdue.</li> </ol>	1.	Inclination of table is incorrect (Poor degree of levelness).	Adjust: Wire to level.	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631		
	2.	Paper fault. Paper is contaminated, or torn, or skewed.	Replace: Paper. Check: Paper in Hopper.			
	3.	Paper Size Guide position attachment fault.	Check: Paper size guide.			
	4.	The height of hopper Table is incorrect.	Adjustment: The height of the hopper Table	7.8.3.8, 7-631		
	5.	Air pressure is incorrect.	Adjustment: Air pressure	Driver Test 2 6.4, 6-10		
<ol> <li>Paper does not arrive at the hopper feed rolle</li> </ol>	1. r.	Paper is caught in the Paper Guide, etc., Paper Guide is separated.	Check: Paper Guide attachment.			
	2.	An obstacle is blocking the paper path(piece of paper, etc.,).	Check: Paper path.			
	3.	Conveyance ability of a roller of the hopper fault. Pressure spring is unfastened(or damaged).	Replace: Roller, Pressure Spring.			
<ol> <li>Paper is on the sensor.</li> </ol>	1.	Contamination of the sensor window, and its environs.	Clean: AHP2 Lower Pick Sensor (S570), AHP2 Upper Pick Sensor (S579), and its environs.			
	2.	Sensor fault. (1) AHP2 Lower Pick Sensor is fault. (2) AHP2 Upper Pick Sensor is fault.	Check: AHP2 Lower Pick Sensor is fault (S570) Function by Sensor Test 1 "AHP 18 2 <sup>1</sup> ". Check: AHP2 Upper Pick Sensor is fault (S579) Function by Sensor Test 1 "AHP 1A 2 <sup>1</sup> ".	Sensor Test 1 6.7, 6-12		
			Replace: AHP2 Lower Pick Sensor is fault (S570). Replace: AHP2 Upper Pick Sensor is fault (S579).	7.8.5.4, 7-663 7.8.5.3, 7-661		

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PRIMARY FACTOR;	<ol> <li>Paper from AHP2 Lower do</li> <li>Paper from AHP2 Upper do</li> <li>Paper from AHP2 Lower do</li> <li>Paper from AHP2 Upper do</li> <li>* Trailing edge of the preceed of the following page react</li> <li>AHP2 Lower pick sensor pate</li> <li>AHP2 Lower pick sensor pate</li> </ol>	es not arrive at AHP2 Lower pick se es not arrive at AHP2 Upper pick ser es not depart from AHP2 Lower pick es not depart from AHP2 Upper pick ding page is not detected to the timi hes the sensor. Issage of the paper from AHP2 Lower ssage of the paper from AHP2 Lower	nsor. (E1AF) isor. (E1B2) sensor. (E1B0)* sensor. (E1B3)* ng to which the paper ir is too early. (E1B1) ir is too early. (E1B4)
5. Continued.	3. PCB fault.	Replace: HP12XPK	7.8.2.26, 7-621
	<ol> <li>Poor connection of connectors, or cable domocod</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-122 on page 5-224

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### 3. Add the following illustration after page 5-223.



Figure 5-122. Error Codes E1AF, E1B0, E1B1, E1B2, E1B3, and E1B4



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4. **Replace** the following table.

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### 5.3.123. MAGROLL MOTOR ALARM (E245)

DETECTION CONTENTS; The Magroll motor does not rotate correctly. DETECTION CONDITIONS; The Magroll Motor Alarm signal ON(H) is detected over the specified time. Check Reset.				
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page	
<ol> <li>Since Magroll does not rotate, so this</li> </ol>	1. Motor fault.	Replace: DEV Motor Assembly (M309)	7.2.4.5, 7-106	
phenomenon occurs.	<ol> <li>Drive System fault. Magroll load fault.</li> <li>The Gear is worn out or damaged, and the power does not transmit to the Magroll.</li> <li>B.B (MRL/MRU Adjust Assembly) Lock.</li> </ol>	Check: Magroll, each gear, and B.B (MRL/MRU Adjust Assembly) Replace: When the Magroll, or the B.B Holder MGR (BB of Magroll) need to be exchanged, the Developer Unit Assembly, and other applicable parts need to be replaced.	7.2.1.44, 7-60 7.2.1.45, 7-61 7.2.4.1, 7-100 7.2.4.2, 7-103 7.2.4.3, 7-104 7.2.4.4, 7-105 7.2.4.5, 7-106 7.2.4.6, 7-107 7.2.4.7, 7-109 7.2.4.13, 7-115 7.2.4.14, 7-117 7.2.4.15, 7-118 7.2.4.16, 7-119	
	3. PCB fault.	Replace: DV14X Assembly CP63X Assembly	7.6.1.8, 7-387 7.6.1.7, 7-386	
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-178 on page 5-316	
<ol> <li>Although the Magroll rotates, this phenomenon</li> </ol>	1. Motor fault.	Replace: DEV Motor Assembly (M309)	7.2.4.5, 7-106	
occurs.	<ol> <li>Drive System fault. Since the Magroll is in load fault, the motor does not reach the correct rotation.</li> <li>Wear of the O Ring causing the actuator of the sensor part not to rotate.</li> </ol>	Check: Magroll, and MRL/MRU Adjust Assembly. Replace: When the MRL Adjust or the MRU Adjust Assembly Magroll need to exchange, the Developer Unit Assembly needs to be replaced. Replace: O Ring	7.2.4.1, 7-100 7.2.1.44, 7-60 7.2.1.45, 7-61 7.2.4.2, 7-103	
	3. PCB fault.	Replace: DV14X Assembly CP63X Assembly	7.6.1.8, 7-387 7.6.1.7, 7-386	
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-178 on page 5-316	
	5. Overflow of the Developer Mix. or overload of the upper Magnet Roll	Adjustment: Magnet Pole Angle Replace: Developer Unit Assembly	Figure 5-181 on page 5-320 7.2.4.1, 7-100	
Refer to Figure 5-178 181 on page 5-320.	on page 5-316, Figure 5-179 c	on page 5-317, Figure 5-160 on pag	e 5-318 and Figure 5-	

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5. Add the following procedure after page 5-315

### Adjustment of magnetic pole angle (measure of E245)

- Remove the Developer Unit Assembly. (Refer to item 7.2.4.1 on page 7-100) [Disassembling Procedures - Items 2 to 6]
- 2. Remove the DEV Bias Cover (Refer to item 7.2.4.18 on page 7-121).
- 3. Loosen the screws A.
- 4. Rotate the MGR Flange (F2) so that the Graduation B accords with the Fitting Mark.

Note: Conform the Graduation C to the Fitting Mark when E245 is not improved even if the Graduation B is conformed to the Fitting Mark. It is necessary to do another investigation or to exchange the Developer Unit Assembly because the cause is different when not improving it by this adjustment.





5. Perform the disassembling procedures in the reverse order.

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### 6. **Replace** the following.

### Pg. 5-455

F



Figure 5-267. Error Codes E427, E428, E429, and E42A

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## Pg. 6-21

Table	6-14	∆diustment	Test Code
rabic	U 17.	Aujuouncin	

Code	Sensor Name	Description	]
00	RESERVE	-	
01	Cleaning of the Charger wire	Cleaning the Charger wire.	1
02	Cleaning of the Transfer corotron wire	Cleaning the Transfer corotron wire.	]
03	Cleaning of the Transfer belt	Cleaning the Transfer belt	1
04	Drain off of the Compressor	Draining off the Compressor.	1
05	Adjustment of the Toner control sensor	Adjust the Toner control sensor.	(Note)
06	Adjustment of the CCD1(Engine) sensor	Execute the self-adjustment intensity of light of LED for CCD1 sensor	
07	Input of the Developer mix	Execute input of the Developer mix	(Note)
08	Exhaust of the Developer mix	Execute exhaust of the Developer mix	(Note)
09	Adjustment of the CCD2(AHP) sensor	Execute the self-adjustment intensity of light of LED for CCD2 sensor	
0A	Adjustment of the Built-in Hopper Lower air pressure	Execute the Pick Blower of the Built-in Hopper Lower.	-
0B	Adjustment of the Built-in Hopper Upper air pressure	Execute the Pick Blower of the Built-in Hopper Upper.	
0C	Adjustment of the AHP1 Lower air pressure	Execute the Pick Blower of the AHP1 Lower.	
0D	Adjustment of the AHP1 Upper air pressure	Execute the Pick Blower of the AHP1 Upper.	
0E	Adjustment of the AHP2 Lower air pressure	Execute the Pick Blower of the AHP2 Lower.	]
0F	Adjustment of the AHP2 Upper air pressure	Execute the Pick Blower of the AHP2 Upper.	]

Note: Execute the Adjustment function again when interrupt pressing " < " button.



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7. **Change** the following illustration.

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Figure 7-21. Removal of the Corotron Wire (for Discharger)



8. **Replace** the following procedure. Pg. 7-721

7.10.12. Adjustment of the amount of reversal of Regist Roller

1. When Paper Skews occur by thin papers, change the amount of reversal of Regist Roller. [Check]

In which does the paper skews occur in simplex printing or duplex printing?.

[Setting Procedures]



Figure 7-828. Adjustment of the amount of reversal of Regist Roller

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Figure 7-829. Adjustment of the amount of reversal of Regist Roller

#### [Paper Skew from the hopper]

Write in the data YY+40 at the address 0408 and the data 28 at the address 0502. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,8	at Display (a)	
■ key	at Display (a)	0408=YY xx xx xx
YY+40 (HEX)	at Display (b)	0408=YY+40 xx xx xx
■ key	at Display (b)	
0,5,0,2	at Display (c)	
■ key	at Display (c)	0502=48 xx xx xx
2,8	at Display (d)	0502=28 xx xx xx
key	at Display (d)	

#### [Paper Skew from the Return]

Write in the data YY+10 at the address 0425 and the data 28 at the address 0525. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,D	at Display (a)	
key	at Display (a)	040D=YY xx xx xx
YY+10 (HEX)	at Display (b)	
■ key	at Display (b)	040D=YY+10 xx xx xx
0,5,2,5	at Display (c)	

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key	at Display (c)	0525=48 xx xx xx
2,8	at Display (d)	
key	at Display (d)	0525=28 xx xx xx

Open and close the Front Cover, because of using the input data. (Refer to item 3.3.1 on page 3-5)

2. When returning the amount of the reversal of the Regist Roller to the value of default.



Figure 7-830. Adjustment of the amount of reversal of Regist Roller

#### [Paper Skew from the hopper]

E

Write in the data YY at the address 0408. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4). <Panel operation> <Panel Display>

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,8	at Display (e)	
key	at Display (e)	0408=YY+40 xx xx xx
Y,Y	at Display (f)	
■ key	at Display (f)	0408=YY xx xx xx



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#### [Paper Skew from the Return]

Write in the data YY at the address 040D. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,D	at Display (e)	
key	at Display (e)	040D=YY+10 xx xx xx
Y,Y	at Display (f)	
key	at Display (f)	040D=YY xx xx xx

Open and close the Front Cover, because of using the input data. (Refer to item 3.3.1 on page 3-5)

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Subject: Engine Maintenance Manual Revise			Prepared by: Y.Minakawa		linakawa	
From: PPBG QA/Service Plannning Dept.						
Classification:	Troubleshooting	Part inf	orma	tion	Action	n required
	Mechanical	Electric	al		Servic	ce manual revision
	Paper path	Transm	it/rec	eive	Retrof	fit information
	Product Safety	Other (		)		

The Engine Maintenance Manual was changed as follows.

**Add** the following procedures after chapter 7.10.12 Pg.7-723



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### 7.11. Assembling Guideline

#### 7.11.1. Assembling of the Grid

Applicable jigs and tools: Radio Nipper.

#### [Assembling Procedures]

- 1. Put the Grid in the Hook of the Wire Holder F.
- 2. Put the 5 Charger Springs in the Grid, put in the Grid Terminal and the Wire Holder R with the radio nipper.



Figure 7-831. Assembling of the Grid

- 3. Put in the Charger. (Refer to item 7.2.1.1 on page 7-5)
- 4. Close the Front Cover (L) Assembly. (Refer to item 3.3.1 on page 3-5)

Note: The usage counter has to be reset after replacing the Grid. (Refer to item 4.2.4 on page 4-13)

Note: Keep the Grid Slit away from hands and objects to prevent it from fingerprints, scratches, dust, and inflection.



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### 7.11.2. Assembling of the Charger Wire

Applicable jigs and tools: Radio Nipper, Tweezers, Gauze.

[Assembling Procedures]

1. Put the Charger Wire in the Wire Terminal.



WIRE TERMINAL

Figure 7-832. Assembling of the Charger Wire

2. Put the opposite side of the Charger Wire in the Hook of the Charger spring, and put the opposite side Hook of the Charger spring in the boss of the Wire Holder F.



Figure 7-833. Assembling of the Charger Wire 3. Put in the Cleaner Block B.



Figure 7-834. Assembling of the Charger Wire

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4. Put in the Charger Cover F, Charger Cover R and the Gear, to put in the retaining ring-E.

RETAINING RING-E



Note: Be careful not to damage the projection part of the gear and sensor shutter during maintenance.

- 5. Put in the Grid Cleaner Assembly. (Refer to item 7.2.1.4 on page 7-11)
- 6. Put in the Grid. (Refer to item 7.11.1 on page 7-725)

Note: Keep the Grid Slit parts away from hands and objects to prevent it from fingerprints, scratches, and dust. (Refer to item 7.11.1 on page 7-725) Refer to the cautions of the Charger Spring. (Refer to item 7.11.1 on page 7-725)



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7. Put in the Charger. (Refer to item 7.2.1.1 on page 7-5)

8. Close the Front Cover (L) Assembly. (Refer to item 3.3.1 on page 3-5)

Note: The usage counter has to be reset after replacing the Charger Wire. (Refer to item 4.2.4 on page 4-13)



Figure 7-836. Assembling of the Charger Wire




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### 7.11.3. Assembling of the Wire Cleaner Assembly

Applicable jigs and tools: Radio Nipper, Tweezers, - Precision Screwdriver.

[Assembling Procedures]

1. Put in the Wire Cleaner Assembly.



Figure 7-838. Assembling of the Wire Cleaner Assembly

2. Put in the four retaining ring-E.



Figure 7-839. Assembling of the Wire Cleaner Assembly



- 5. Put in the Grid. (Refer to item 7.11.1 on page 7-725)
- 6. Put in the Charger. (Refer to item 7.2.1.1 on page 7-5)
- 7. Close the Front Cover (L) Assembly. (Refer to item 3.3.1 on page 3-5)

Note: The usage counter has to be reset after replacing the Grid Cleaner Assembly. (Refer to item 4.2.4 on page 4-13)





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Note: The usage counter has to be reset after replacing the Corotron Wire. (Refer to item 4.2.4 on page 4-13)

Note: The Corotron Wire must be correctly attached in the groove as shown below.

Figure 7-843. Assembling of the Corotron Wire (for Erase)





TERMINAL

Figure 7-845. Assembling of the Corotron Wire (for Discharger)

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- 4. Put in the DC Cleaner Assembly. (Refer to item 7.2.1.9 on page 7-20)
- 5. Put the snap-fit (3 places) of the DC Cover in the Discharger Case, put in the two ⊕ screws (2 places).



Figure 7-846. Assembling of the Corotron Wire (for Discharger)

6. Put in the Discharger Assembly. (Refer to item 7.2.1.7 on page 7-16)

Note: The usage counter has to be reset after replacing the Corotron Wire. (Refer to item 4.2.4 on page 4-13) The usage counter has to be reset after replacing the Discharger Case. (Refer to item 4.2.4 on page 4-13)

Note: Do not touch the Corotron Wire in the area shown above. If the Corotron Wire is accidentally touched, cleaned it with Gauze. (The new printer has already a clean Corotron Wire installed. Do not use alcohol instead of water.)



Figure 7-847. Assembling of the Corotron Wire (for Corotron (W) Assembly)





Figure 7-848. Assembling of the Corotron Wire (for Corotron (W) Assembly)

Note: Set the Corotron Wire on edge of projection A and projection B.

### Technical Bulletin

### Reissued: 03-Aug-07

Model: EMP156			Date	e: 12-Jun-06	No.: RG155014b
<b>RTB Reissue</b> The items in bo	old italics have been a	dded.			
Subject: Firmware Release History (Controller) Prepared by: Y.Minakawa				linakawa	
From: 2nd Tech.	Support Sec. Service Sup	port Dept			
Classification:	Troubleshooting	Part infe	ormati	on 🗌 Actior	n required
	Mechanical	Electric	al	Servic	ce manual revision
	Paper path	🗌 Transm	it/rece	eive 🗌 Retro	fit information
	Other ()				

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
e <i>m</i> 204	G1552684D	June 2007 production
em 202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer
- Check the version of the current controller software and select the pertinent file from the three files and install it.
   Please check "Upgrade Instruction for EMP156 Controller Software" for the installation procedure for the firmware.

Version	Symptom Corrected
em204	Symptom Corrected:
	<ol> <li>The machine uses the wrong output tray when the operator specifies the tray using the "PS:setOutputTray" command.</li> <li>A PS error occurs if a blank field is specified for /MediaType or /MediaColor.</li> </ol>
	3. A TaskExit error occurs if the printer receives a specific PCL job created by an M driver.
	4. The user can access the service menu without a password.



### Reissued: 03-Aug-07

Model: EM	/IP156	Date: 12-Jun-06	No.: RG155014b	
Version	Version Symptom Corrected			
	<ul> <li>Other changes:</li> <li>1. Supports AppleTalk protocol for AUX network I/F.</li> <li>2. Added PS 85Ipi half-tone.</li> <li>3. Added the "PS Wait Timeout" menu to the OCP.</li> <li>4. Added a counter to the account log file for the number of copy sets.</li> <li>5. The printer can receive 4GB or more when Spooling is disabled.</li> <li>6. Deleted the "EMP156" logo from the Web menu.</li> </ul>			
em202	<ol> <li>Symptom Corrected</li> <li>Preprinted paper printed reverse sid</li> <li>French language message displaye</li> <li>Other changes:         <ol> <li>Support of the "Transit Pass Unit".</li> <li>Click Charge Counter added. (Counsize.)</li> <li>Removal of (mistaken) display of A</li> </ol> </li> </ol>	le when stacked in d malfunction on th nting each page reg 4 Tab LEF and Lett	Sample Tray. e OCP. gardless of paper ter tab LEF on the	
em201	<ul> <li>OCP.</li> <li>Part of the printed image is shifted in Note: This only happens on the Role</li> </ul>	n the direction of th HS compliant mach	e scan. iine.	
em200	<ul> <li>The PostScript version displayed is Incorrect: 3011 Correct: 3015</li> <li>Some minor symptoms with PostSc</li> <li>Other changes:</li> <li>Supports new RoHS compliant hard</li> </ul>	incorrect. ript printing were co lware.	prrected.	
em114	<ul> <li>German and French languages wer deleted.</li> <li>Paper Color function is supported w</li> <li>Considers the Media Color whe</li> <li>"Printer - Paper Source - Paper</li> <li>"Paper Color" menu was added</li> <li>"Manage - System - Virtual Print Web Utility.</li> <li>String of the Color was added to copCustomMediaColor" was added</li> <li>Tracing Paper is supported as a Parent Paper Paper</li></ul>	e added. Japanese ith PostScript. n processing Media Color" menu was a to "Manage - Syste ter - each VPT - Po o "prtInputMediaCol dded in the MIB. per Type. n was added. /Disable" option was ter - each VPT - Ge abled).	a Matching. added to the OCP. and - Tray" and ostScript" of the lor" of the MIB.	



### Reissued: 03-Aug-07

Model: EMP	156	Date: 12-Jun-06	No.: RG155014b
Version	Sympton	n Corrected	
	<ul> <li>The Image Shift function with PJL of TBCP mode is supported with Post</li> <li>Letter and A4 can be selected with orientation.</li> <li>"Auto Feed Orientation" option General - Options" of the Web</li> </ul>	xommands is supporte Script. PCL and PJL, regard was added to "Manaç Utility.	ed. less of sheet ge - System -
	<ul> <li>The LPD Banner Page function was</li> <li>"LPD Banner Page: Enable/Dis System - Virtual Printer" (factor</li> <li>Improved the switching time betwee Additional HCF.</li> <li>The "Printer - Paper Source - H the OCP.</li> <li>The "HCF Tray Control" Menu w Web Utility.</li> <li>A timeout (time limit) was added for The configuration Report function w</li> <li>The "configuration" option was OCP for user adjustable param</li> <li>The "Config Print" option was a menu of the OCP for various er</li> </ul>	s added. able" option was adde y default: Disabled). en the Standard Input ICF Tray Control" mer was added to "System or LPR, RawTCP and vas added. added to the "Report" eters. added to the "Service	ed to: "Manage - Tray and nu was added to n - Tray" in the IPP. ' menu of the - Configuration"
	<ul> <li>Added new Default Virtual Printer "I Changed Default Virtual Printer "TE Changed engine parts name "Cyclo Web / MIB.</li> <li>Fixed various PCL/PostScript issue Improved compatibility with HP prin Corrected the page image position</li> <li>Corrected the EC#04 error when us Corrected the EC#04 error when us Corrected the "2 on 4 off" test print</li> <li>Added the Engine FPGA version to Corrected a display error for the nu</li> <li>Corrected the PJL USTATUS comm</li> </ul>	lp" to port 9100. EXT" to "text" for port 3 one Filter" to "Fine Filt es. Iter functionality. for PostScript. sing the HCF2 Upper pattern. the Status Page. mber of OPC sheets mand response.	3100. er" on the OCP / Tray. used (10 <b>→ 11</b> ).

# Technical Bulletin

**PAGE: 1/4** 

Model: EMP156		Dat	e: 26-Jul-0	7	No.: RG155022	
Subject: Engine Maintenance Manual Revise			Prepared	l by: Y.M	linakawa	
From: PPBG QA/	Service Plannning Dept.					
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	Part info Electric Transm	ormai al it/rec	tion eive )	☐ Action ⊠ Servic ☐ Retrof	required e manual revision it information

The Engine Maintenance Manual Rev.4 was changed as follows.

1. **Replace** the following procedures.



Model: EMP156

Date: 26-Jul-07

No.: RG155022

### Pg. 7-484

### 7.7.1.13. Removal of the Timing Belt-3(for Stopper)

CAUTION: Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance. Note: Maintain the removed Jogger Unit Assembly by placing on the PM Frame Stand. Applicable jigs and tools: Screwdriver, - Jeweler's Screwdriver set, Push-Pull Scale. [Disassembling Procedures] Remove the Jogger Unit Assembly. (Refer to item 7.7.1.1 on page 7-466) Unscrew the one (+) screw A to remove the Stopper Assembly(H)2. Unscrew the two(+)screw B to remove the one Belt Clamper. 4. Loosen the one rescrews C, and remove the one Timing Belt-3 by sliding the J Pulley Stand Assembly. STOPPER **⊕** SCREWS A ONE TIMING BELT-3 ASSEMBLY(H)2 (ONE SCREW) LOOSEN @ SCREW C (ONE SCREW) ONE BELT CLAMPER (H) J PULLEY STAND ASSEMBLY O SCREWS B (TWO SCREWS) Figure 7-570. Removal of the Timing Belt-3 (for Stopper) [Assembling Procedures] Perform the disassembling procedures in the reverse order. Note: When fixing the J Pulley Stand Assembly by fastening the one ⊕ screw C, adjust the





**PAGE: 3/4** 

Model: EMP156

Date: 26-Jul-07

No.: RG155022

Pg. 7-494

#### 7.7.1.23. Removal of the Linear Sleeve-3 (for Stopper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Maintain the removed Jogger Unit Assembly by placing on the PM Frame Stand.

Applicable jigs and tools: ⊕ Screwdriver, - Jeweler's Screwdriver Set. [Disassembling Procedures]

- 1. Remove the Jogger Unit Assembly. (Refer to item 7.7.1.1 on page 7-466)
- Unscrew the one ⊕ screw A to remove the Stopper Assembly (H).
- 3. Unscrew the two ⊕ screws B to remove the one Belt Clamper.
- 4. Unscrew the five ⊕ screws C to remove the Stopper Drive Assembly.
- Remove the SJ Paper Guide (U) Assembly (Refer to item 7.7.1.5 on page 7-476). [Disassembling Procedures - Item 2.]
- Unscrew the three ⊕ screws D to remove the two J Stopper Shafts, Stopper Shaft Holder and the Linear Sleeve-3.
- 7. Remove the two Retaining Ring.
- 8. Remove the Linear Sleeve-3.



Figure 7-580. Removal of the Linear Sleeve-3 (for Stopper)

#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

RICOH	Technical B	PAGE: 4/4	
Model: EMP156		Date: 26-Jul-07	No.: RG155022

2. Add the following procedure after chapter 7.7.1.24.

#### Pg. 7-495

### 7.7.1.25. Removal of the Overlap Roller Holder Assembly (for Stopper)

CAUTION: Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance. Note: Maintain the removed Jogger Unit Assembly by placing on the PM Frame Stand. Applicable jigs and tools: (+) Screwdriver, - Jeweler's Screwdriver set. [Disassembling Procedures] 1. Remove the Jogger Unit Assembly. (Refer to item 7.7.1.1 on page 7-466) Unscrew the one screw A to remove the Stopper Assembly(H)2. 3. Unscrew the two⊕screw B to remove the two Overlap Roller Holder Assemblies. SCREW B (TWO SCREWS) TWO OVERLAP ROLLER HOLDER ASSEMBLIES SCREW A STOPPER ASSEMBLY(H)2 (ONE SCREW) STOPPER ASSEMBLY(H)2 Figure 7-582.Removal of the Overlap Roller Holder Assembly [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

### Technical Bulletin

Reissued: 11-Oct-07 Model: EMP156

Date: 21-June-06

No.: RG155006e

#### **RTB Reissue**

The items in bold italics have been added.					
Subject: Firmware Release History (Engine)		Prepared by: Y.Minakawa			
From: 2nd Tech §	Support Sec. Service Support [	Dept.			
Classification:	Troubleshooting	Part informat	tion	Action required	
	Mechanical	Electrical		Service manual revision	
	Paper path	Transmit/rec	eive	Retrofit information	
	Product Safety	🛛 Other (	)		

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
М	G1552685H	September 2007production
L	G1552685G	May 2007 production
К	G1552685F	January 2007 production
J	G1552685E	October 2006 production
l	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After confirming the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please confirm "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected
М	<ul> <li>Other changes:</li> <li>1. Switching tray times were significantly reduced (prior pick-mode). Please refer to RTB: RG155024 for details.</li> <li>2. Heater control was modified.</li> <li>3. To prevent images blurring on 14"x 18" size paper, a function has been added to enable heat roller rotation speeds to be adjusted (1,500rpm&gt;1,490rpm).</li> </ul>

Reissued: 11-Oct-07

Model: EMP156 Dat		Date: 21-June-06	No.: RG155006	3e
Version	Symptom Corrected			
	Engine Microcode Revisions:			
	Microcode	Revision		
	Print Engine - Master	0D		
	Print Engine - Slave	0D		
	Print Engine - FPGA	08 (The same	as Rev.H)	
	AHP(HCF)	0B		
	Stacker 1 (Container Stacker 1)	0D		
	Stacker 2 (Container Stacker 2)	0D		
	<ol> <li>Paper transport control was changed s sheets of paper after switching from du the drop in print speed when switching Note: There is one exception: The spa switching from Tray 1/2 duplex to the H Engine Microcode Revisions:</li> </ol>	to that there is no space oplex to simplex printin from duplex to simple ce between sheets is a ICF2 lower tray simple	e in between g. This minimizes x. about 2 sheets wl ex.	s hen
	Microcode	Revision		
	Print Engine - Master	0B		
	Print Engine - Slave	0B		
	Print Engine - FPGA	08 (The same	e as Rev.H)	
	AHP(HCF)	09 (The same	e as Rev.K)	
	Stacker 1 (Container Stacker 1)	0B		
	Stacker 2 (Container Stacker 2)	0B		

Reissued: 11-Oct-07

Model: EMP156 Date: 21-June-06		Date: 21-June-06	No.: RG155006e		
Version	Symptom Corrected				
К	<ol> <li>Other changes:</li> <li>New settings added: The reverse rotation angle for the registration roller can now be controlled separately for simplex and duplex printing. This is to minimize skew.</li> <li>The heater control parameters were optimized for when switching between thin and thick paper. This will help ensure the proper print speed.</li> <li>The pick belt turns in reverse about 25mm when the exit tray is lowered after printing. This is to ensure that the paper does not get caught between the pick belt and separation pawl.</li> </ol>				
	Engine Microcode Revisions:				
	Microcode Print Engine - Master Print Engine - Slave Print Engine - FPGA AHP(HCF) Stacker 1 (Container Stacker 1) Stacker 2 (Container Stacker 2)	Revision0A0A0A0A08 (The same090A0A	as Rev.H)		
J	1. Support of the "Transit Pass Unit". Engine Microcode Revisions:				
	Microcode	Revision			
	Print Engine - Master	09			
	Print Engine - Slave	09			
	Print Engine - FPGA	08 (The same	as Rev.H)		
		08 (The same	as Rev.H)		
	Stacker 1 (Container Stacker 1)	09			
	Stacker 2 (Container Stacker 2)	09			
I	Other changes: Heater control parameters were optimized sensor error. Engine Microcode Revisions:	to prevent unnecessary	/ detections of the		
	Microcode	Revision	]		
	Print Engine - Master	08			
	Print Engine - Slave	08			
	Print Engine - FPGA	08 (The same	as Rev.H)		

Reissued: 11-Oct-07 Model: EMP156 Date: 21-June-06 No.: RG155006e Symptom Corrected Version AHP(HCF) 08 (The same as Rev.H) Stacker 1 (Container Stacker 1) 08 Stacker 2 (Container Stacker 2) 80 Н EC#09 (Print Timeout Error) • E312, E313 misdetection. • E275 (OC HARD ERROR) misdetection. • The image density sometimes decreases in Very Thick mode. • Dirty background. **Other Changes** The detection conditions for E072/E073 were changed to prevent unnecessary ۲ occurrences. Toner density control was improved. • The speed of the cleaner motor was increased to improve cleaning performance. • The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages). **Engine Microcode Revisions:** Microcode Revision Print Engine - Master 07 Print Engine - Slave 07 Print Engine - FPGA 80 AHP(HCF) 80 Stacker 1 (Container Stacker 1) 07 Stacker 2 (Container Stacker 2) 07 G The image density decreases after 400KC developments are made of an original • with high image coverage. EC#09 (print time-out error) occurs when the machine switches from the built-in  $\bullet$ hopper to the optional hopper (AHP) during a print job. **Other Changes** The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180). The laser power for Very Thick Mode was optimized (It is the same setting as • Thick Mode). **Engine Microcode Revisions:** Revision Microcode Print Engine - Master 06 Print Engine - Slave 06 07 Print Engine - FPGA



Reissued: 11-Oct-07

Model: EM	Model: EMP156 Date: 21-June-06 No.: RG155		No.: RG155006e
Version	Sympton	Corrected	
	AHP(HCF)	07	
	Stacker 1 (Container Stacker 1)	06	
	Stacker 2 (Container Stacker 2)	06	
E	<ul> <li>The motor control was changed to reduce HCF feed jams.</li> <li>E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)</li> <li>Other Changes: <ul> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a paper weight.</li> <li>The amount of stack offset between jobs can now be adjusted for long paper.</li> <li>Added an Air Pressure Adjustment.</li> <li>Added an ST Stopper Adjustment (to the driver test).</li> </ul> </li> </ul>		is. ed Jam12) justed for long paper.

# Technical Bulletin

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Model: EMP156			Dat	:e: 25-Sep-0	7	No.: RG155023
Subject: Engine Maintenance Manual Revise				Prepared	by: Y.M	linakawa
From: PPBG QA/Service Plannning Dept.						
Classification:	Troubleshooting	Part inf	orma	tion	Action	n required
	Mechanical	Electric	al		Servic	e manual revision
	Paper path	Transm	it/rec	eive [	Retrof	fit information
	Product Safety	Other (		)		

The Engine Maintenance Manual Rev.4 was changed as follows.

Add the following procedure after chapter 7.3.4.17.

Model: EMP156

Date: 25-Sep-07

No.: RG155023

#### 7.3.4.18. Change of the Thermostat Assembly

CAUTION : Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

CAUTION : The Fuser Assembly is very hot. Turn the printer off and allow the Fuser Assembly to cool for 1 hour before attempting to remove it. CAUTION : The weight of the Fuser Assembly is 55lb.

Note ; Do not open the vinyl Package of the new Thermostat Assembly just before Assembling Procedure 6.

Necessary Requirement : The Fuser Unit Rev. "J" is painted black.

#### Applicable jigs and tools

+ Screwdriver - Screwdriver Wrench for Hex Socket Bolt Gauze Black Felt-tip Pen

#### [Disassembling Procedures]

#### In case of more than one worker, go to Disassembling Procedure 3.

- 1. Remove the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 1 to 10]
- 2. Remove the Backup Roll and the Web Cassette Assembly. (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedures - Items 2 to 3]
- 3. Remove the Fuser Assembly from the Printer. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures - Items 5 to 6]
- 4. Unscrew the one + screw.



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7. Remove the cables. (Front side)



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8. Unscrew the two + screws and remove the two cable Disconnect the connector and remove the cables.	e clamps.	CABLE CABLE CLAMP CABLE CLAMP

#### [Assembling Procedures]

the gauze.



1. Clean the Thermostat Assembly mounting surface of the Fuser Frame with

### In case of more than one worker, go to Assembling Procedure 4.

- 2. Assemble the Backup Roll into the Fuser Assembly.
  Do not assemble the Web Cassette Assembly to the Fuser Assembly.
  (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedures Item 3]
- 3. Assemble the Heat Roll Assembly into the Fuser Assembly.
- (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures Items 8 to 10]

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#### 4. Clean the surface of the Heat Roll with the gauze.

Clean this area where Thermostats bump.



5. Put a paper on the Heat Roll, and prevent from scratch the surface of the Heat Roll.



6. Open the vinyl package of the new Thermostat Assembly. Take out the new Thermostat Assembly and the Relay Cable. **RELAY CABLE** Peel off the paper tape.





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CAUTION : Do not transform the following parts. Do not adhesion the dust.



7. Put the cables (two connectors side) of the Thermostat Assembly through the hole of front Fuser Frame. (Put through the connector B after putting through the connector A.)



8. Put the cables (one connector side) of the Thermostat Assembly through the hole of rear Fuser Frame.



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9. Put the new three Thermostat Assemblies into the Fuser Assembly. (Refer to Front View 1, 2, and 3 sequentially for the procedure.)



10. To move freely in the Thermostat Assembly, tighten the six hex socket bolts and the washers **loosely**.



11. Remove the paper from the Heat Roll.

CAUTION : Do not scratch the surface of the Heat Roll

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Model: EMP156

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12. Close the Fuser Frame.

(Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Item 8]

#### Note ; Do not nip the Cables with the Fuser Frame.

13. Push the Lock Shaft Assembly in the direction of the arrow A, and tighten the + Screw. 14. Turn the TH Handle (H) Assembly in the direction of the arrow B.



15. Confirm (1) The six hex socket bolts are loosely to move freely in the three Thermostat Assemblies.

- (2) The three Thermostat Assemblies are parallel to the Heat Roll.
- (3) The three Thermostat Assemblies are bumped into the Heat Roll.
- (4) The Fuser Frame is closed.
- (5) The TH Handle (H) Assembly is turned in the direction of the arrow B.



16. Tighten the all six hex socket bolts very strongly.

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### 17. Turn the TH Handle (H) Assembly in the direction of the arrow C.



18. Unscrew and scrap the three – screws. Remove and scrap the three Thermostat Spacers.



19. Joint the one connector, and tighten the two + screws and the two cable clamps, and fasten the cables. (Rear side)







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20. Unscrew the one + screw to slide the Lock Shaft Assembly in the direction of the arrow D.



21. Open the Fuser Frame, and assemble the one screw and the E Blush Holder Assembly. (Refer to the Disassembling Procedures 4 to 5)

In case of more than one worker, go to Disassembling Procedure 24.

22. Remove the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 8 to 10]
23. Remove the Backup Roll. (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedures - Item 3]
24. Assemble the Fuser Assembly into the Printer. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures - Items 5 to 6]
In case of more than one worker, go to Disassembling Procedure 27.
25. Assemble the Backup Roll and the Web Cassette Assembly. (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedure 27.
26. Assemble the Heat Roll Assembly.

- (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures Items 7 to 10] 27. Close the Fuser Frame. (Refer to item 7.3.4.2 on page 7.268) [Disassembling Procedures - Item 8]
  - (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures Item 8]

#### Note ; Do not nip the Cables with the Fuser Frame.

28. Push the Lock Shaft Assembly in the direction of the arrow A, and tighten the + Screw. (Refer to the Assembling Procedure 13)

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Model: EMP156	Date: 25-Sep-07	No.: RG155023
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29. Turn the TH Handle (H) Assembly in the direction of the arrow B. (Refer to the Assembling Procedure 14)

30. Joint the three connectors, and assemble the Relay Cable bundled in the new Thermostat Assembly Package. (Front side)



- 31. Assemble the three + screws and the Front Cover (T).
- Assemble the three + screws and the Rear Cover (T).

(Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 2 and 4] 32. Paint Black the Fuser Unit Rev. "W" with the Black Felt-tip Pen.

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## Technical Bulletin

Model: EMP156 Date			e: 11-Oct-0	)7	No.: RG155024	
Subject: Switchir	ng Tray			Prepared	by: Y.M	linakawa
From: PPBG QA/	Service Plannning Dept.					
Classification:	Troubleshooting	Part info	ormat	tion	Action	required
	Mechanical	Electric	al		Servic	e manual revision
	Paper path	🗌 Transm	it/rec	eive	Retrof	it information
	Product Safety	🛛 Other (		)		

Printing productivity was improved with the upgrade from engine firmware version L to version M, as switching tray times were significantly reduced.

Please refer to the tables below outlining the improved rates of productivity. The table shows productivity from the second copy onwards.

Note: Grey cells outline improved productivity achieved with version M engine firmware.



#### Case 1: EMP156+HCF1

Paper Rotation	Produ	uctivity	Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 2 -> Tray 4 -> Tray 2 (repetitively)	100%	100%	156ppm	156ppm	
Tray 1 -> Tray 4 -> Tray 1 (repetitively)	66%	100%	104ppm	156ppm	

#### Case 2: EMP156+HCF1

Paper Rotation	Productivity		Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 1-> Tray 2 -> Tray 4 -> Tray 1 (repetitively)	50%	75%	78ppm	117ppm	

#### Case 3: EMP156+HCF1+HCF2

Paper Rotation	Produ	uctivity	Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 2 -> Tray 6 -> Tray 4 -> Tray 2 (repetitively)	75%	100%	117ppm	156ppm	

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No.: RG155024

### Case 4: EMP156+HCF1+HCF2

Paper Rotation	Produ	ictivity	Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 2 -> Tray 6 -> Tray 4 -> Tray 6 -> Tray 2 (repetitively)	66%	100%	104ppm	156ppm	

#### Case 5: EMP156+HCF1+HCF2

Paper Rotation	Produ	ictivity	Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 1 -> Tray 2 -> Tray 5 -> Tray 6 ->Tray 4 -> Tray 1 (repetitively)	71%	100%	111ppm	156ppm	

#### Case 6: EMP156+HCF1+HCF2

Paper Rotation	Produ	ictivity	Speed		
	Ver.L	Ver.M	Ver.L	Ver.M	
Tray 1 -> Tray 2 -> Tray 5 -> Tray 6 -> Tray 3 -> Tray 4 -> Tray 1 (repetitively)	75%	100%	117ppm	156ppm	

# Technical Bulletin

#### PAGE: 1/1

Model: EMP156 Dat			Date: 5-Nov-07		No.: RG155025					
Subject: Additional I nformation			Prepare	d by: Y.M	linakawa					
From: PPBG QA/	Service Planning Deplt.									
Classification:	Troubleshooting	Part inf	ormat	tion	Action	n required				
	Mechanical	Electric	al		Servic	e manual revision				
	Paper path	Transmit/rec		Transmit/r		Transmit/red		eive 🗌 Ret		fit information
	Product Safety	🛛 Other (		)						

Additional information for EMP156.

1. Check for play (slack/movement) between the pick motor pulley and pick motor.

(1) Purpose

To prevent paper jams at the hopper and problems with pick belt position, which result from a loose Hex Socket screw.

Check the pick motor pulley's Set Screw.

Following the attached procedure, please check the pick unit at PM time.

(2) Procedure

Please refer to the RTB: RG155026.

(3) Other

The motor pulley has been modified by increasing the number of hex socket screws from 1 to 2. (MB No.: MG155034)

2. Update Engine Micro to the latest revision.

(1) Purpose

Engine Micro was improved to resolve some issues. Please update the Engine Micro to the latest revision.

- The latest revision is "M", as at Oct 2007.
- Older Micro revisions might produce some of the following problems. Rev J and earlier: Light print problem Rev L: Over Skew Jam

# Technical Bulletin

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Model: EMP156 Date			:e: 5-Nov-0	7	No.: RG155026	
Subject: Checking Pick Motor Pulley play			Prepared	d by: Y.M	linakawa	
From: PPBG QA/	Service Planning Deplt.					
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	<ul> <li>□ Part info</li> <li>□ Electric</li> <li>□ Transm</li> <li>⊠ Other (</li> </ul>	ormat al it/rec	tion eive )	Action	n required ce manual revision fit information

This RTB shows the procedure for checking the Pick Motor Pulley play.

#### 1. Part to check

Pick Motor pulley for all hoppers



Pick Motor (Stepping Motor 6)

Pick Motor Pulley (Pulley Assembly)

- 2. Checking procedure
- (1) Pull out the Hopper.

(2) Check for play (movement) between the Pick Motor Pulley and Pick Motor by rotating the pick belt forwards and in reverse by hand.



If rattling can be felt upon moving the pick belt, there is play between the Pick Motor Pulley and the Pick Motor.

Model: EMP156	Date: 5-Nov-07	No.: RG155026
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(3) If there is play between the Pick Motor Pulley (Pulley Assembly) and Pick Motor (Stepping Motor 6), tighten 2 Hex Socket Set Screws to fix the pulley assembly onto the motor shaft. (Refer to the Maintenance Manual)

Note: Equipment with earlier serial numbers than the table below may have only one Hex Socket Set Screw.

Hopper Tray	Printer	HCF1	HCF2
Serial Number	Q4960440020	Q6151270014	Q6060580013

Relevant Sections of the Maintenance Manual:

Hopper Tray	Printer	HCF1/HCF2
Lower	7.6.1.58	7.8.2.7
Upper	7.6.1.59	7.8.2.8
# Technical Bulletin

#### **PAGE: 1/1**

Model: EMP156 Da		Dat	ate: 22-Nov-07		No.: RG155027	
Subject: Breaking of Sub Path Gate(3) Assy and Entrance Gate(3) Assy			Prepared	d by: T.Ta	adokoro	
From: PPBG QA/	Service Planning Deplt.					
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	<ul> <li>□ Part info</li> <li>□ Electric</li> <li>□ Transm</li> <li>⊠ Other (</li> </ul>	ormat al it/rec	tion eive )	Action	required e manual revision it information

#### 1. Symptom

The plastic parts of the gates start cracking after a few million prints, eventually causing paper jams.

2. Cause

The cause of the damage was due to the material being weak against heat. (Susceptible to heat)

3. Countermeasure:

The material was changed from Polyacetal to Polybutylene Terephalate.

Please replace the broken parts.

Model: EMP156

# Technical Bulletin

Reissued: 27-Nov-07

Date: 22-Nov-07

No.: RG155028a

#### **RTB Reissue**

Heat Roll Gear changing procedure has been added.						
Subject: Broken Heat Roll Gear			Prepared by: T.Tadokoro			
From: PPBG QA/	Service Planning Deplt.					
Classification:	Troubleshooting	Part informat	tion	Action required		
				Service manual revision		
	Paper path	Transmit/rec	eive	Retrofit information		
	Product Safety	🛛 Other (	)			

### 1. Symptom

Heat Roll Gear breaks after approx. 1 million images (5 pieces) As a result, paper jams (E180:HR OUT JAM) at the Fusing unit are generated.

### 2. Cause

The cause of the damage was an air cavity in the Heat Roll Gear.

3. Countermeasure:

Molding conditions (molding machine's settings/ mold/die temperature) for the Heat Roll Gears will be changed to prevent air cavities from being produced.

Please replace the Heat Roll Gears on installed machines and machines in the warehouse, during installation or PM.

Please refer to 7.3.4.5 of the Engine Maintenance Manuals for the procedure.

**Note:** So that old and newly revised Heat Roll Gears and Heat Roll Assy's can be distinguished from one another, a red dot on the Heat Roll Gear and a black dot at the end of the part number, located on the carton box, have been added.





Part Label on the Carton Box

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4. Procedure

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### EMP156 Heat Roll Gear Changing Procedure

#### Caution

Be sure to turn off the main AC power prior to performing this procedure. The Fuser Assembly is very hot.

Turn the printer off and make sure it has cooled before attempting work.

#### Tools

Philips Screwdrivers, Flat head Screwdrivers, Radio Nipper

#### **Disassembly Procedure**

- 1. Open the Front Cover (L) and Front Cover (R).
- 2. Hold the Latch up and pull the Fuser Assembly forward in the direction of the arrow.



- 3. Unscrew the three + screws to remove the Front Cover (T).
- 4. Turn the TH Handle (H) Assembly in the direction of the arrow.



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5. Unscrew the three + screws to remove the Rear Cover (T).



6. Disconnect the Heater Lamp Assembly (Front Side) connector.



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7. Disconnect the Heater Lamp Assembly (Rear Side) connector.



8. Unscrew the single + screw and slide the Lock Shaft Assembly in the direction of arrow A.



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- 9. Open the Fuser Unit Assembly in the direction of arrow B and open the Paper Guide In Assembly in the direction of arrow C.
- 10. Remove the single + screw. Attach the HR Handle included in the Accessory Box and secure it in position by screwing in the single + screw.
- 11. Remove the Heat Roll Assembly.



12. Insert the Heater Lamp Guide from the rear side. The Heater Lamp Guide is included in the Accessory Box.





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13. Loosen the two + screws and slide the Lamp Holder Clamper in the direction of arrow A.

14. Remove the Heater Lamp Assembly with the Heater Lamp Guide.



- 15. Unscrew the single + screw A and remove the HR Handle.
- 16. Unscrew the three + screw B and remove the Lamp Holder Rear.
- 17. Remove the single Retaining Ring to remove the Heat Roll Ring Assembly.
- 18. Remove the Heat Roll Gear and replace with countermeasure Heat Roll Gear.



#### **Assembly Procedure**

Perform the disassembly procedure in reverse order.

# Technical Bulletin

### Reissued: 03-Dec-07

Model: EMP156	Date: 12-Jun-06	No.: RG155014c

### **RTB Reissue**

The items in bold italics have been added.

Subject: Firmware Release History (Controller)			Prepared by: Y.Minakawa		
From: 2nd Tech. Support Sec. Service Support Dept					
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part information</li> <li>Electrical</li> <li>Transmit/rec</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>	

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em 202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set:
   Engine Program No. G1552685E or newer
- Confirm revision of current controller software and select the pertinent file from three files and install it.

Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware .

Version	Symptom Corrected		
em300	Symptom Corrected:		
	1. PS limitcheck error occurs when the printer is operated around-the-clock.		
	2. A log file error occurs when the "reload" button on the web utilities is clicked.		
	3. A Task Exit error occurs when the "sample" button is touched.		
	4. A JavaScript error occurs when LPR/LPD of TCP/IP is disabled.		
	5. Unable to set spooling when Raw Socket is enabled and LPR/LPD of TCP/IP		
	is disabled.		

### Reissued: 03-Dec-07

Model: EMP156		Date: 12-Jun-06	No.: RG155014c		
Version	Symptom Corrected				
	<i>Other changes: 1. Supports IPDS.</i>				
em204	<ol> <li>Symptom Corrected:</li> <li>The machine uses the wrong output tray when the operator specifies the tray using the "PS:setOutputTray" command.</li> <li>A PS error occurs if a blank field is specified for /MediaType or /MediaColor.</li> <li>A TaskExit error occurs if the printer recieves a specific PCL job created by an M driver.</li> <li>The user can access the service menu without a password.</li> </ol>				
	<ul> <li>Other changes:</li> <li>1. Supports AppleTalk protocol for AUX network I/F.</li> <li>2. Added PS 85lpi half-tone.</li> <li>3. Added the "PS Wait Timeout" menu to the OCP.</li> <li>4. Added a counter to the account log file for the number of copy sets.</li> <li>5. The printer can recieve 4GB or more when Spooling is disabled.</li> </ul>				
	6. Deleted the "EMP156" logo from the W	eb menu.			
em202	<ol> <li>Symptom Corrected</li> <li>Preprinted paper printed reverse side when stacked in Sample Tray.</li> <li>French language message displayed malfunction on the OCP.</li> </ol>				
	Other changes: 1. Support of the "Transit Pass Unit". 2. Click Charge Counter added. (Countir 3. Removal of (mistaken) display of A4 1	ng each page regardles Tab LEF and Letter tab	s of paper size.) LEF on the OCP.		
em201	<ul> <li>Part of the printed image is shifted in the Note: This only happens on the RoHS</li> </ul>	ne direction of the scan compliant machine.			
em200	<ul> <li>The PostScript version displayed is incorrect. Incorrect: 3011 Correct: 3015</li> <li>Some minor symptoms with PostScript printing were corrected.</li> </ul>				
	Other changes:				
em114	<ul> <li>German and French languages were added. Japanese language was deleted.</li> <li>Paper Color function is supported with PostScript.</li> <li>Considers the Media Color when processing Media Matching.</li> <li>"Printer - Paper Source - Paper Color" menu was added to the OCP.</li> <li>"Paper Color" menu was added to "Manage - System - Tray" and "Manage - System - Virtual Printer - each VPT - PostScript" of the Web Utility.</li> <li>String of the Color was added to "prtInputMediaColor" of the MIB.</li> <li>"ocpCustomMediaColor" was added in the MIB.</li> </ul>				
	<ul> <li>Tracing Paper is supported as a Paper</li> <li>The "Accounting Slip Sheet" function v</li> <li>"Accounting Slip Sheet: Enable/Di</li> <li>System - Virtual Printer - each VP</li> </ul>	vas added. sable" option was adde T - General" menu of th	ed to the "Manage - ne Web Utility		

### Reissued: 03-Dec-07

Model: EMP156		Date: 12-Jun-06	No.: RG155014c		
Version	Symptom Corrected				
	(factory default: Disabled).				
	<ul> <li>The Image Shift function with PJL commands is supported.</li> <li>TBCP mode is supported with PostScript.</li> <li>Letter and A4 can be selected with PCL and PJL, regardless of sheet orientation.</li> <li>"Auto Feed Orientation" option was added to "Manage - System - General - Options" of the Web Utility.</li> </ul>				
	<ul> <li>The LPD Banner Page function was added.</li> <li>"LPD Banner Page: Enable/Disable" option was added to: "Manage - System - Virtual Printer" (factory default: Disabled).</li> </ul>				
	<ul> <li>Improved the switching time between the Standard Input Tray and Additional HCF.</li> <li>The "Printer - Paper Source - HCF Tray Control" menu was added to the</li> </ul>				
	<ul> <li>DCP.</li> <li>The "HCF Tray Control" Menu was Utility.</li> <li>A timeout (time limit) was added for LF</li> <li>The configuration Report function was</li> <li>The "configuration" option was add user adjustable parameters.</li> <li>The "Config Print" option was added the OCP for various engine parameters</li> </ul>	s added to "System - Tr PR, RawTCP and IPP. added. ded to the "Report" mer ed to the "Service - Cor eters.	ay" in the Web nu of the OCP for nfiguration" menu of		
	<ul> <li>Added new Default Virtual Printer "Ip" f</li> <li>Changed Default Virtual Printer "TEXT</li> <li>Changed engine parts name "Cyclone MIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer</li> <li>Corrected the page image position for</li> <li>Corrected the EC#04 error when using</li> <li>Corrected the "2 on 4 off" test print pat</li> <li>Added the Engine FPGA version to the</li> <li>Corrected the PJL USTATUS command</li> </ul>	to port 9100. " to "text" for port 3100. Filter" to "Fine Filter" of functionality. PostScript. I the HCF2 Upper Tray. tern. Status Page. er of OPC sheets used of response.	n the OCP / Web / (10 <b>→ 11</b> ).		

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Subject: Engine Maintenance Manual Revise			Prepared by: T.Tadokoro			
From: PPBG QA/Service Planning Deplt.						
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Product Safety</li> </ul>	Part info Electric Transm	ormat al it/rec	tion eive )	☐ Action ⊠ Servic ☐ Retrot	n required ce manual revision fit information

The Engine Maintenance Manual Rev.5 was changed as follows.

**Replace** the following. Pg.3-9

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### 3.3.2. Removing of the Cover







Figure 3-6. Main Body Cover

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**Replace** the following. Pg.3-20

## 3.6. Tools Required

### 3.6.1. List of all tools

The tools which are necessary for servicing this printer are listed below.

(1) Special Tool

Table 3-4. List of all special tools

No.	Name	Q'ty	Part Number	TO be used for	Note
1.	Interlock Stopper	5	G1552542 (7534159)	Front cover open interlock stopper.	To be shipped with the printer as the accessories (when
2.	Wire Cleaning Tool	1	G1501426 (N320426A)	To clean the wire of the Charger Unit and the Transfer Unit.	separately.
3.	PM Frame Stand L	2	G1552543 (N315021)	The maintenance of Jogger Unit.	To be shipped with the Printer as the accessories.
4.	Tweezers	1	G1552545 (N335775)	Used at clearing paper from the Fuser Unit.	This is made of bamboo. To be shipped with the Printer as the accessories.
5.	HR Handle	1	G1552544 (N107194)	Used at Heat Roll, Back Up Roll replacement.	To be shipped with the Printer as the accessories.
6.	HV Monitor Cable Assembly	1	G1552846 (N338620A)	Used at checking the High Voltage Power Supply output.	To be purchased separately.

(2) General Tool

Note; scale is all metric

Table 3-5. List of all general tools

No.	Name and Specification
1.	Phillips Screwdriver No.2 medium shaft length; approx. 100mm
2.	Phillips Screwdriver No.2 long shaft length; approx. 300mm
3.	Phillips Screwdriver No.2 short shaft length; approx. 40mm
4.	Screwdriver tip width; approx. 6mm, shaft length; approx. 100mm
5.	Jeweler's Screwdriver Set tip width; 2.0 - 2.5 mm
6.	Hex Wrench Set 1.5mm, 3mm and 4mm size must be included in the set
7.	Long Nose Chain Pliers with side cutter (Radio Nipper)
8.	Blower Brush
9.	Adjustable Open End Wrench Span; 30mm
10.	Tweezers
11.	Internal Circlip Pliers Shafts; 8mm, 85mm in diameter
12.	External Circlip Pliers Bore hole; 72mm in diameter

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Add the following procedure after chapter 3.6.2.

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## 3.6.3. Usage of the HV Monitor Cable Assembly

The HV Monitor Cable Assembly is used to check with the High Voltage monitor output of the High Voltage Power Supply.

CAUTION:

### Stop the print operation prior to performing the Operation.

Note: HV Monitor Cable Assembly is not shipped with the Printer. It is a special tool to be purchased separately.

Applicable jigs and tools: Multimeter. [Confirm Procedures]

- 1. Remove the Rear Cover (R) Assembly. (Refer to item 3.3.2.1 on page 3-9)
- 2. Connect the HV Monitor Cable Assembly with the J834 connector of CP63x Assembly. (Refer to the figure below).



Figure 3-17-2. Usage of the HV Monitor Cable



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3. Check if the High Voltage Power Supply output is correctly. (Refer to the figure and table below).

#### CAUTION:

If the High Voltage monitor output value is not the same as the regulated value, do not execute the trimmer adjustment of the High Voltage Power Supply, and exchange the High Voltage Power Supply.

Measure the voltage of the HV MONITOR pin of the HV Monitor Cable Assembly with the multimeter. The table below shows the relation between the High voltage output and HV MONITOR pin number and output voltage of the HV monitor terminal.





HV MONITOR pin

Figure 3-17-3. Usage of the HV Monitor Cable

#### Table 3-8-2. List of all High Voltage monitor outputs

No.	Items	HV MONITOR Connector pin No.		DC/AC	Output Voltage of HV MONITOR terminal *
1.	CH1 : Charger	1	10	-DC	-2.00 V
2.	CH2 : Grid	2	11	-DC	Refer to Table 3-8-3
3.	CH3 : Developer Bias	3	12	-DC	Refer to Table 3-8-4
4.	CH4 : Erase	4	13	AC	4.24 Vrms
5.	CH5 : Transfer	5	14	+DC	Refer to Table 3-8-5
6.	CH6 : Transfer-Erase	6	15	+DC	0.30 V
7.	CH7 : Transfer Drive Roller Bias	7	16	+DC	11.0 V
8.	CH8 : Detach DC	8	17	-DC	Refer to Table 3-8-6
9.	CH8 : Detach AC	9	18	AC	4.50 Vrms

\* It is a value for print density "Middle".

Ex. Charger output measurement procedure

Code 50 of the driver test1 (Refer to item 6.3 on page 6-5) is executed, and the High Voltage output of Charger is turned on.

The voltage between HV MONITOR-1 Pin and HV MONITOR-10 Pin is measured with the multimeter.

Note: Show each value of the Output Voltage of the HV MONITOR terminal in the following tables. Each value in the list is a rough standard. Therefore, it is not abnormal even if the output value is different.

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#### Table 3-8-3. List of all High Voltage monitor outputs

No.	Items	Developer Mix usage (kc) *	OPC usage (kc) *	Output Voltage of HV monitor terminal **
1.	CH2 : Grid	0~39	0~199	-4.65V
			200~399	-4.75V
			400~	-4.85V
		40~	0~199	-5.25V
			200~399	-5.35V
			400~	-5.45V

#### Table 3-8-4. List of all High Voltage monitor outputs

No.	Items	Developer Mix usage (kc) *	Output Voltage of HV monitor terminal
1.	CH3 : Developer Bias	0~39	-3.50V
		40~	-4.00V

\* Confirm the development medicine and the amount of the OPC usage from the operator Control Panel by the following procedures.

Setup  $\rightarrow$  Service  $\rightarrow$  Input Password  $\rightarrow$  Consumable  $\rightarrow$  UC Parts

\*\* It is a value for print density "Middle".

The CH5 of Transfer output is variable controls by temperature and humidity, so confirm the setting value by reading the data of address 0560 and 0561. (Refer to item 6.1 on page 6-4).

Table 3-8-5. List of all High Voltage monitor outputs

No.	Items	Read Data 0560 a	of Address & 0561	Output Voltage of
		0560	0561	
1.	CH5 : Transfer	00	FA	0.45V
		00	C8	0.40V
		00	96	0.35V
		00	64	0.30V

The CH8 of Detach DC output is variable controls by temperature and humidity, so confirm the setting value by reading the data of address 0575 and 0576. (Refer to item 6.1 on page 6-4).

Table 3-8-6.	List of all High	Voltage monitor outputs	

No.	Items	Read Data 0575 8	of Address & 0576	Output Voltage of
		0575	0576	
1.	CH8 : Detach DC	00	DC	-4.50V
		01	05	-6.04V
		01	2D	-7.54V
		01	55	-9.04V
		01	7E	-10.58V
		01	A6	-12.08V

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**Replace** the following.

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Table 4-1. PM Parts List (1)

	800Ki	1600Ki	2400Ki	3200Ki	Expected	Note
Break Pad x 3	At 9,600	Ki replace	ement req	uired.	<i>v</i>	7.2.2.6
Developer Unit	I	I	С	I.		4.4.1.7
Drive-train of Developer unit	At 12,00	0ki lubrica	ation requ	ired.		4.4.1.9
Toner Bottle Joint Area	С	С	С	С		
Toner Collector Bottle Area	С	С	С	С		
Flicker Bar in Cleaner unit	At 2,500 (At the s	Kc cleani ame time	ng require replacing	d. Cleaning	Brush.)	4.4.1.6
BR Separator x 3	C	С	С	С	At 4,800Ki replaceme nt required	4.4.2.1
Temperature Sensor (1)	С	C		С		4.4.2.2
Temperature Sensor (2)			С			4.4.2.11
Heat Roll and Collar			R			7.3.4.6
Backup Roll			R			7.3.4.3
Heater Lamp Assembly	At 19,20	At 19,200Ki replacement required.				7.3.4.4
Inverter Valve Piece in Inverter Unit		С		С		4.4.2.4
Pressure Roller and Feed Roller in Inverter Unit		С		С		4.4.2.3
Feed Roller PHS (L) Assembly (Inverter Unit)	At 12,80	0Ki replac	cement re	quired.		7.3.2.11
CCD Sensor	С	С	С	С		4.4.2.5
Regist Drive Roller Assembly	At 17,60	0Ki replac	cement re	quired.	8	7.3.3.25
Timing Driven Roller	At 17,60	0Ki replac	cement re	quired.		7.3.3.35
Transfer Corona Unit and Wire	С	С	С	С		4.4.1.4
Discharging Corona Unit and Wire	С	C	С	С		4.4.1.3
Erase Wire Assembly and Erase Corotron Wire	С	С	С	С		4.4.1.2
Transfer Belt	I	R	1	R		7.2.6.2
Sleeve Bearing x 4	At 19,20	0Ki replac	cement re	quired.		7.2.6.14
Earth Spring Assembly(5) x 3 (for Transfer)	At 4,800	Ki replace	ement req	uired.		7.2.6.4

R	C	0	Η	

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## 4.2.2. Items and Frequencies of Periodical Cleaning and Lubrication

(If any maintenance is noted with plural frequencies, an inspection is to be made on an earlier schedule.)

#### Table 4-12. Scheduled inspection items and frequencies

No.	Items	Frequency	Customer Engineer's Task	Operator's Task	Work Time (min.)	Note	Maint. Ref.
5.	Cleaning					(yes) : Qualified Operator by	
	Drum Wrap Sensor	2,400 ki	Yes	(Yes)	3	CE may be able to do	4.4.1.5
	Charger unit and Wire	800 ki	Yes		7	checking.	4.4.1.1
	Paper Hopper / Tray and	Daily		Yes	1		4.4.3
	Stacker Area	Per Visit	Yes		1		4.4.5
	Toner Bottle Joint Area	Per supplying toner		Yes	1		
		Per Visit	Yes		1		
	Transfer Corona Unit and Wire	800 ki	Yes		5	ki : kilo-images	4.4.1.4
	Discharging Corona Unit	Daily		Yes	1		4.4.1.3
	and whe	800 ki	Yes		4		
	Erase Wire Assembly and Erase Corotron Wire	800 ki	Yes		4		4.4.1.2
-	LED Eraser	2,400 ki	Yes		1		4.4.1.10
	Machine Inside (Middle Stay etc.)	2,400 ki	Yes		8		4.4.1.11
	CCD Sensor	<sup>*1</sup> 800 ki	Yes	(Yes)	1	*1 Depend on	4.4.2.5
	Developer Unit	2,400 ki	Yes		3	Paper Quality	4.4.1.7
	BR Separator in Fuser	Daily		Yes	1		4.4.2.1
	Unit	Per Visit	Yes		1		
	Toner Collector Bottle Area	Per Bottle Replacement		Yes	1		
		Per Visit	Yes		1		
	Flicker Bar in Cleaner unit	2,500 kc	Yes		1		4.4.1.6
	Inverter Valve Piece in	Daily		Yes	5		4.4.2.4
	Inverter Unit	1,600 ki	Yes		5		4.4.2.4
	Pressure Roller and Feed Roller in Inverter Unit	<sup>*1</sup> 1,600 ki	Yes		15		4.4.2.3
	Surface Voltage Sensor	1,600 ki	Yes		3		4.4.1.11
	Temperature Sensor *2	800 ki	Yes		3	*2 Potor to Noto 12	4.4.2.2
		2,400 ki	Yes		<sup>*3</sup> 13 (33)	*3 Refer to Note 13	4.4.2.11
	Pick Belt / Pick Belt Position Sensor	3,200 ki	Yes		15		4.4.2.7
	Fuser-In Paper Guide /	Daily		Yes	5		4.4.2.8
	Fuser-Out Paper Guide	Per Visit	Yes		5		

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**Replace** the following.

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Table 4-14. Scheduled replacement items and frequencies

No.	Items	Frequency	Customer Engineer's Task	Operator's Task	Work Time (min.)	Note	Maint. Ref.
	Erase Corotron Wire	6,000 kc	Yes		<sup>*15</sup> 1 (5)	<sup>*15</sup> Refer to the Note 10	7.2.1.6
	TC Wire Holder (L) TC Wire Holder (R)	6,000 kc	Yes		*16 (5)	<sup>*16</sup> Refer to the Note 11	7.2.1.6
	Pick Belt (1000/2500 Sheet Hopper and High Capacity Feeder (3000/3000(option)) each)	9,600 kpic	Yes		15	kpic: kilo number of paper picks	7.6.1.54 7.6.1.57 7.8.2.11 7.8.2.14
	Air Filter (Engine and High Capacity Feeder)	3,200 ki	Yes		7		7.6.1.47 7.8.2.18
	Regist Drive Roller Assembly	17,600 ki	Yes		25		7.3.3.25
	Timing Driven Roller	17,600 ki	Yes		15		7.3.3.35
	Ozone Filter x 2	6,000 kc or M4	Yes		3		7.5.1.1
	Brake Pad	9,600 ki	Yes		10		7.2.2.6
	Idler Roller Assembly x 4 (ST1 U/L, ST2 U/L)	9,600 ki	Yes		20		7.7.4.10
	Heater Lamp Assembly	19,200 ki	Yes		*17 5 (15)	"17 Refer to the Note 3	7.3.4.4
	BR Separator x 3	4,800 ki	Yes		<sup>*17</sup> 15 (30)		7.3.4.12
	Earth Spring Assembly(5) x 3 (Transfer)	4,800 ki	Yes		*18 4	<sup>*18</sup> To replace at the same time with Transfer Belt	7.2.6.4
	Carbon Electrode (Transfer)	7,200 ki	Yes		5		7.2.6.3
	Feed Roller PHS (L) Assembly (Inverter Unit)	12,800ki	Yes		30		7.3.2.11

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**Replace** the following. Pg.4-30

4. Pull in the direction of **D** until the Doctor Blade Cleaner is caught on the Doctor Blade, and shuttle the Doctor Blade Cleaner three times between **B** and **C**.



Figure 4-17. Cleaning of the Doctor Blade





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**Replace** the following. Pg.4-31

5. Pull out the Doctor Blade Cleaner after inclining it to  $30^{\circ}$  or less.



Figure 4-18. Cleaning of the Doctor Blade

- Note: 1. Be sure to incline the Doctor Blade Cleaner when pulling it out. If pulled out by force without inclining it a broken piece of the Doctor Blade Cleaner remains in the Developer Unit causing a defective print. Remove when the Doctor Blade Cleaner is broken and the broken piece remains in the Developer Unit.
   2. The Doctor Blade Cleaner is a disposable part. Therefore, throw it away after using it once.
- 6. Perform the cleaning procedures in the reverse order.
- 7. Print the Raster Pattern by using the Test Print of the OCP menu (see below), and confirm occurrence of the Black Spot (no less than 0.5mm) on the blank page.



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**Replace** the following. Pg.4-35

## 4.4.1.12. Cleaning of the Opt-Window (Optical Unit)

#### CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the cleaning.

Note: Do not take power to center of the Opt-Window, when cleaning the Opt-Window. (Because of the Opt-Window is set by both sides screw.)

Note that a wipe spots of alcohol do not remain when cleaning it.

Do not touch the surface of the Opt-Window by hand. If accidentally touched, clean it with alcohol.

Please handle the Optical Unit carefully, because of precision parts.

Do not use solvents other than alcohol when cleaning the Opt-Window.

Applicable jigs and tools: Philips Screwdriver, Gauze, Alcohol.

#### [Cleaning Procedures]

- 1. Remove the Optical unit. (Refer to item 7.1.1.1 on page 7-1)
- 2. Reverse of the Optical Unit.
- 3. Polish up the surface of the Opt-Window by using the Gauze got wet with Alcohol.
- 4. Polish with Dry-Gauze so that a wipe spots should not remain at the end.
- 5. Return it in the reverse order.



REVERSE OF THE OPTICAL UNIT

Figure 4-22. Cleaning of the Opt-Window (Optical Unit)



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**Replace** the following. Pg.5-3

### 5.2. Troubles

## 5.2.1. Printer Power ON Impossible

CAUTION	Pay special attention while performing maintenance because these troubles are caused in the power supply. Before checking the Low Voltage Power Supply part since electric power is supplied to AC Input Terminal even if the power switch of the printer is off, intercept the electric supply breaker so that the voltage may not built over the input part, and remove the electric supply plug.
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Phenomenon		Causes	<b>Corrections &amp; Check Points</b>	Page
1 The main breaker (CB1)	1 CB3-1 tripped. (CB3-1 Abnormalities in	1 Fuser Assembly fault.	Check: Lift the Fuser Assembly, and check.	7.3.4.1, 7-267
tripped.	Load)	2 Low Voltage Power Supply fault.	Replace: Low Voltage Power Supply 1/2	7.6.1.4, 7-382
		3 PCI Power Supply fault.	Replace: Switching Regulator (for PCI)	7.6.1.33, 7-416
		4 CE Power Supply fault.	Replace: CE Power Supply	Refer to CE Manual
		5 AHP Power Supply fault.	Replace: Switching Regulator (for AHP)	7.8.2.23, 7-618
		6 AC01X Assembly fault.	Replace: AC01X Assembly	7.6.1.63, 7-454
		7 RB32X Assembly fault.	Replace: RB32X Assembly	7.6.1.10, 7-389
		8 Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Refer to circuit diagram.
	2 CB3-2 tripped. (CB3-2 Abnormalities in	1 Fuser Assembly fault.	Check: Lift the Fuser Assembly, and check.	7.3.4.1, 7-267
	Load)	2 Transformer fault. (For Pick)	Replace: Transformer (For Pick)	7.6.1.42, 7-426
		3 Pick Blower fault.	Replace: Pick Blower (Build in hopper) Pick Blower (HCF1/2)	7.6.1.46, 7-432
		4 CST Power Supply fault.	Replace: Switching Regulator (for CST)	7.7.6.1, 7-566
		5 RB32X Assembly fault.	Replace: RB32X Assembly	7.6.1.10, 7-389
		6 Low Voltage Power Supply fault.	Replace: Low Voltage Power Supply 1/2	7.6.1.4, 7-382

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**Replace** the following. Pg.5-4

1 Continued.	3. CB2 tripped. (CB2 Abnormalities in Load)	<ol> <li>Fuser Assembly fault.</li> <li>Heater Driver fault.</li> </ol>	Check: Lift the Fuser Assembly, and check. Replace: Heater Driver	7.3.4.1, 7-267         7.6.1.12, 7-391
		3 Transformer fault. (For Cleaner)	Replace: Transformer (For Cleaner)	7.6.1.42, 7-426
		4 Relay fault.	Replace: Relay	7.6.1.40, 7-424
		5 Electromagnetic Relay fault.	Replace: Electromagnetic Relay	7.6.1.41, 7-425
		6 Cleaner Blower fault.	Replace: Cleaner Blower	7.5.1.3, 7-369
		7 Compressor fault.	Replace:	7.5.1.4, 7-370
		8 CB2 fault.	Replace: CB2 Breaker	7.6.1.39, 7-423
2 Power Supply is not turned on although the breaker did not trip.	1 The alarm of the Low Voltage Power Supply is not on.	1 The switch and Breaker of the Low Voltage Power Supply are not turned on.	Check: The switch(white switch Mounted beside the power Supply) of the Low Voltage Power Supply, and CB3-1/2.	Figure 5-1 on page 5-5
		2 Abnormalities of Supplied voltage.	Check: Supplied voltage.	
		3 Abnormalities of PCI signal.	Check: Cable or connector connection fault. Replace: RB32x Assembly Replace: Switching Regulator Check: from CE to PCI signal.	Engine Block Circuit Diagram 7.6.1.10, 7-389 Check CE
		4 Abnormalities of Power ON signal.	Check: Cable or connector connection fault. Check: from CE to Power on signal.	
		5 Low Voltage Power Supply fault.	Replace: Low Voltage Power Supply 1/2	7.6.1.4, 7-382
	2 Fan Alarm LED is ON.	1 Fan failure of the Low Voltage Power Supply.	Replace: Low Voltage Power Supply 1/2	7.6.1.4, 7-382
	3 +5V Alarm LED is ON.	1 Short circuit of load, etc., unusual current flowed to +5V output.	Check: Short circuit of +5V load, etc.,	Engine Block Circuit Diagram
		2 Low Voltage Power Supply fault.	Replace: Low Voltage Power Supply 1/2	7.6.1.4, 7-382

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**Replace** the following. Pg.5-46

## 5.3.20. DEVELOPER BOTTLE SET (E031)

DETECTION CONTENTS;Developer bottle set sensor has been turned on.DETECTION CONDITIONS;Developer bottle set sensor detected developer mix bottle existing.RESET CONDITIONS;Developer bottle set sensor detects developer mix bottle absent.					
PHENOMEN	ION	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page	
1. Developer Bottle is set.	1. After the e Developer Developer set.	xchange of mix the Bottle remains	Take out the Developer Bottle.	7.2.4.29, 7-135	
2. Detected when the Developer Bottle was set.	1. Bottle Set Sensor Connection fault. When the Developer Bottle is set, it checks whether the actuator of the sensor is operating correctly.		Set the Micro Switch correctly.	7.2.4.20, 7-125	
	2. Drawer Co Loose con contact pin	nnector fault. nection of damaged.	Replace: DEV Drawer K Cable Assembly	7.2.1.28, 7-42	
	3. Sensor fault.		Check: Micro Switch (S318) function by Sensor Test 1 "PR 11 20"	Sensor Test 1 6.7, 6-12	
			Replace: Micro Switch (S318)	7.2.4.20, 7-125	
4. Poor connection of connectors, or cable damaged.		Repair the cables or reset the connector in the correct position.	Figure 5-18 on page 5-47		
	5. PCB fault.		Replace: DV14X Assembly	7.6.1.8, 7-387	
Refer to Figure 5-18 c	on page 5-47.		1	1	



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**Replace** the following. Pg.5-47



Figure 5-18. Error Code E031, and E036

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**Replace** the following. Pg.5-48

## 5.3.21. DEVELOPER BOTTLE NOT SET (E036)

PRIMARY FACTOR; Detected that the Developer Bottle Sensor was turned off.						
PHENOMENON C, CHE		CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Developer Bottle for exhaust is not set correctly.	1. The bottle is not set correctly, when drain the developer mix. Or the cap of the bottle does not turn properly		Set the Developer Bottle Set Sensor correctly.	7.2.4.29, 7-135		
2. Detected when the Developer Bottle for Exhaust was set.       1. Bottle Set Sensor connection fault.         When the Developer Bottle is set, it checks whether the actuator of the sensor is operating correctly.		Set the Micro Switch correctly.	7.2.4.20, 7-125			
	2. Drawer Connector fault. Loose connection of contact pin damaged.		Replace: DEV Drawer K Cable Assembly	7.2.1.28, 7-42		
3. Poor connection of connectors, or cable damaged.		Repair the cables or reset the connector in the correct position.	Figure 5-18 on page 5-47			
	4. Sensor f	ault.	Replace: Micro Switch (S318)	7.2.4.20, 7-125		
	5. PCB fau	lt.	Replace: DV14X Assembly	7.6.1.8, 7-387		
Refer to Figure 5-18 on	page 5-47.					

RICOH	lechnic	cal <b>B</b>	ulletin	PAGE: 19/93
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<b>Replace</b> the follow Pg.5-174	ving.			
PRIMARY FACTOR;	<ol> <li>Double feed of 1st page fm</li> <li>Double feed of 2nd page a</li> <li>Double feed of 1st page fm</li> <li>Double feed of 1st page fm</li> <li>Double feed of 2nd page a</li> <li>Double feed of 1st page fm</li> <li>Double feed fm</li> <li>Double feed</li></ol>	om BUILD and over from om BUILD and over from om AHP1 I and over from AHP2 I and over from AHP2 I and over f from AHP2 I and over f eet, the pa enetrates the paper thick ckness is in on paper th	-IN HOPPER LOWER. (E19 om BUILD-IN HOPPER LO -IN HOPPER UPPER. (E15 om BUILD-IN HOPPER UP LOWER. (E154) om AHP1 LOWER. (E155) UPPER. (E156) om AHP1 UPPER. (E157) LOWER. (E15A) from AHP2 LOWER. (E15B) UPPER. (E15C) from AHP2 UPPER. (E15D) aper double feed sensor do he paper more than 1.5 tim cness is managed for even managed for each hopper ickness is reset.	50) WER. (E151) 2) PER. (E153) ) etects that the nes, or below 1/1.5 the ry hopper. . When a hopper is
1. continued.	5. The distance between the Pick Belt and Separation Gate is wide.	Adjustme	nt: Adjust the distance of the Pick Belt and Separation Gate.	Figure 5-120-2 on page 5-219
2. Paper movement fault.	<ol> <li>Paper difference. The paper of double feed which is different in the same hopper is contained. The paper of color which is different in the same hopper is contained. The pre-printed paper which the hole is opening are intermingled in the same hopper. Back paper (finishing/printing) is used in the same hopper.</li> </ol>	Check: P	aper.	
	2. Check of foreign substances, dirt, etc., Sensor becomes dirty.	Remove: Check: D	Dirt. S04X (S807)	
	3. Incorrect operation of sensor. Sensor is diagnosed, the paper of this series	Check: B	y Sensor Test 2 "01"	Sensor Test 2 6.8, 6-18
	output value of the sensor, and the variation is larger than the diagnosed function.	Replace:	DS04X (S807)	7.3.3.1, 7-221
	4. Poor connection of connectors, or cable damaged.	Repair th connecto	e cables or reset the r in the correct position.	Figure 5-93 on page 5-175
	5. Table of Hopper is not level.	Adjustme	nt: Table wire of Hopper	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631
	Table is incorrect.	Adjustme	Table.	_
L				



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**Replace** the following. Pg.5-181

PRIMARY FACTOR;	<ol> <li>Paper Skews from BUILD-IN HOPPER LOWER. (E170)</li> <li>Paper Skews from BUILD-IN HOPPER UPPER. (E171)</li> <li>Paper Skews from AHP1 LOWER. (E172)</li> <li>Paper Skews from AHP1 UPPER. (E173)</li> <li>Paper Skews from AHP2 LOWER. (E175)</li> <li>Paper Skews from AHP2 UPPER. (E176)</li> <li>Paper Skews from RETURN. (E178)</li> </ol>				
	<ul> <li>2. (8) Attachment of the Vertical Path is not perpendicular.</li> <li>(9) Regist Cover attachment fault. Hinge part is faulty.</li> <li>(10) Conveyance force</li> </ul>	Attachment: Vertical Path Check: Regist Cover			
	balance of the Regist part is incorrect. Rubber Roll Shaft of the Regist Unit is contaminated. Rubber Roll Shaft is	Clean: Roller Replace: Roller			
	partially worn. Spring of the roller of the Regist Unit is not	Attach: Spring			
	(11) Paper path surface is contaminated. (12) Skew correction is not enough.	Clean: Paper path surface, rollers, etc. Adjust the amount of reversal of Regist Roller.	7.10.12, 7-721		
	(13) Skew occurs in the paper path.	Check the cause of the paper skew on the paper path. Replace the involved parts	5.6.1, 5-505 (4)-(g)		
	3. Sensor attachment fault. The position of the Skew Sensor has shifted.	Check: Sensor			
2. Paper skew occurs. (E178)	<ol> <li>Skew occurred.         <ol> <li>(1) Conveyance force balance of the Convey- ance part is incorrect. Rubber Roll is contaminated, or partially worn.</li> <li>Spring of the Pressure Roller is not correctly attached.</li> <li>(2) Fuser Assembly fault. Heat Roll, Backup Roll is partially worn.</li> <li>(3) Conveyance force balance of the Regist Unit is incorrect. Rubber Roll Shaft of the Regist Unit is contaminated, or partially worn.</li> <li>Spring of the roller of the Regist Unit is not correctly attached.</li> <li>Spring of the Open Paper Guide (2) is not correctly attached.</li> </ol> </li> </ol>	Clean: Roller Replace: Roller Attach: Spring Replace: Fuser Assembly Check: Fuser Assembly Clean: Roller Replace: Roller Attach: Spring Clean: Paper path surface.			

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<b>Replace</b> the follow Pg.5-182	ving.			
PRIMARY FACTOR;	<ol> <li>Paper Skews from BUILD-IN</li> <li>Paper Skews from BUILD-IN</li> <li>Paper Skews from AHP1 LO</li> <li>Paper Skews from AHP1 UP</li> <li>Paper Skews from AHP2 LO</li> <li>Paper Skews from AHP2 UP</li> <li>Paper Skews from RETURN</li> </ol>	I HOPPER LOWER. (E170) I HOPPER UPPER. (E171) WER. (E172) 'PER. (E173) WER. (E175) 'PER. (E176) . (E178)		
2. Paper skew occurs. (E178)	<ol> <li>(4) Problem of the paper path surface         <ul> <li>Foreign substances are on the surface of the paper path.</li> <li>Paper guide in the Fuser Assembly has accumulated toner or paper dust contamination.</li> <li>Path Gate has</li> </ul> </li> </ol>	Clear away the foreign substances. Clean the paper guide in the Fuser Assembly.	4.4.2.8, 4-45	
	<ul> <li>contamination, burr or crack.</li> <li>(5) In thin papers, the curl of the return paper is large.</li> <li>(6) Skew correction is not enough.</li> </ul>	Sub Path Gate(2) Assembly Entrance Gate(3) Assembly Adjust the amount of reversal of Regist Roller.	7.3.1.32, 7-193 7.3.1.33, 7-194 7.10.12, 7-721 7.10.12, 7-721	
	(7) Skew occurs in the return path.	on the paper path Replace the involved parts	5.6.1, 5-505 (4)-(g)	
<ol> <li>Paper skew has not occurred.</li> </ol>	<ol> <li>Sensor detected paper jam error.</li> <li>Chad, or dust on the sensor window of the Skew Sensor, and its environs.</li> <li>Sensor attachment fault.</li> </ol>	Clean: Sensor, and its environs. Adjust: Sensor attachment.		
4. Skew occurs	<ul> <li>2. Detected sensor error. Piece of paper is put in front of the sensor window, and CHECK RESET is carried out. (Since it initializes by the Regist Roller rotation, it is made for a piece of paper not to fall.) Normally, if the above operation is carried out, it is set to PAPER ON PAPER PATH. Error at the time of normal Sensor name Error Code S803 E05B S804 E05C Does not become PAPER ON PAPER PATH.</li> <li>1. Refer to previous page</li> </ul>	Replace: Sensor Skew Sensor 1 (S803) Skew Sensor 2 (S804) CP63X Assembly	7.3.3.15, 7-243 7.3.3.15, 7-243 7.6.1.7, 7-386	
4. Skew occurs though it has not been detected.	Refer to detected concer			
Mechanical location of	Z. Kelel to detected sensor error.  Motors Sensors at refer to Fiel	re 5.06 on page 5.170		

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**Replace** the following. Pg.5-191

## 5.3.82. HEAT ROLL OUT2 JAM 1 (E180) HEAT ROLL OUT2 JAM 2 (E181)

PRIMARY FACTOR; Paper does not arrive at HR Out2 Sensor. (E180) Paper does not depart from HR Out2 Sensor within the specified time. (E181)			
<ol> <li>1) End of the previous page is not detected to the timing to which the leading edge of the following page reaches the sensor.</li> <li>2) After the end of the previous page passed, the leading edge of the following page was detected within the specified time. (Previous page was late.)</li> </ol>			
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper skewed.	Check: Skew reason.	5.6, 5-504 Check jam obstacles.
	2. Fuser Assembly is contaminated. BR Separator is dirty. Air leaks. HR Strip Gap fault.	Remove: Piece of paper, dirt, etc., Clean: Cleaning of the BR Separator Remove: O Ring Readjustment of the Nozzle Plate.	4.4.2.8, 4-45 4.4.2.1, 4-36 7.3.4.16, 7-286 7.3.4.23, 7-294
	<ol> <li>Paper fault.</li> <li>Check whether the paper curve in the hopper is not too large, or the curvature of the paper for one side printing is not too large.</li> </ol>	Replace: Paper	
	4. Transfer Belt is not rotating correctly.	Check: By Driver Test 1 "0C"	Driver Test 1 6.3, 6-5
		Replace: Stepping Motor 8 DV14X Assembly	7.2.1.15, 7-28 7.6.1.8, 7-387
	5. Motor fault.	Check: By Driver Test 1 "32"	Driver Test 1 6.3, 6-5
		Replace:Fuser Motor Assembly (M301)	7.2.1.11, 7-22
		Check: By Driver Test 1 "0D"	Driver Test 1 6.3, 6-5
		Replace: Stepping Motor 8 (for HR Out (M303)	7.3.1.2, 7-163
	6. PCB fault.	Replace: DV14X Assembly	7.6.1.8, 7-387
	7. Fuser Assembly fault.	Replace: Fuser Assembly	7.3.4.1, 7-267
2. An obstacle is detected although a paper jam does	1. Sensor surface, or surroundings are contaminated.	Clean: HR Out2 Sensor (S309), and its surroundings.	
not occur.	2. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-105 on page 5-193
	3. Sensor fault.	Check: By Sensor Test 1 "PR13 22"	Sensor Test 1 6.7, 6-12
		Replace: HR Out2 Sensor (S309)	7.3.1.6, 7-167



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**Replace** the following. Pg.5-203

### 5.3.86. SB JAM 1 (E18D) SB JAM 2 (E18E)

PRIMARY FACTOR;	Paper does not arrive at Switch Back Sensor. (E18D) Paper does not depart from Switch Back Sensor within the specified time. (E18E) End of the previous page is not detected to the timing to which the leading edge of the following page reaches the sensor.		
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper skewed.	Check: Skew reason.	5.6, 5-504 Check jam obstacles.
	2. Paper, paper path is contaminated.	Remove: Piece of paper, dirt, etc.,	
	3. Paper fault. Check whether the paper curve in the hopper is not too large, or the curvature of the paper after passing the Fuser Assembly is not too large.	Replace: Paper	
	<ul> <li>4. Paper position.</li> <li>Check if the paper is rightly on the return path.</li> <li>Check if the jamming paper has stopped under the Path Gate.</li> </ul>	Replace: Path Gate1 Motor (M307) (If the paper is not on the return path.) Check if the jamming paper has fold or damage due to stumbling over the Path Gate. Replace: Sub Path Gate(2) Assembly Replace: Entrance Gate(3) Assembly	7.3.1.1, 7-162 7.3.1.32, 7-194 7.3.1.33, 7-193
	5. Motor fault.	Check: By Driver Test 1 "0E" and "0F"	Driver Test 1 6.3, 6-5
	6 PCB fault	Replace: SB Motor (M304)	7.3.1.3, 7-164
2. An obstacle is detected although a paper jam does	1. Sensor surface, or surroundings are contaminated.	Clean: SB Sensor (S303), and its surroundings.	
not occur	2. Sensor fault.	Check: By Sensor Test 1 "PR13 23"	Sensor Test 1 6.7, 6-12
		Replace: SB Sensor (S303)	7.3.1.7, 7-168
	3. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-113 on page 5-204
Mechanical location of Motors, Sensors, etc., refer to Figure 5-114 on page 5-205.			

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<b>Replace</b> the follow Pg.5-213	ving.		
PRIMARY FACTOR;	<ol> <li>Paper from BUILD-IN HOP PICK sensor. (E1A0)</li> <li>Paper from BUILD-IN HOP LOWER PICK sensor. (E1A</li> <li>The BUILD-IN HOPPER LO HOPPER LOWER is too ea</li> <li>Paper from BUILD-IN HOP PICK sensor. (E1A3)</li> <li>Paper from BUILD-IN HOP UPPER PICK sensor. (E1A</li> <li>The BUILD-IN HOPPER UPPER VE HOPPER UPPER is too ear</li> </ol>	PPER LOWER does not arrive at BUIL PPER LOWER does not depart from B A1) OWER PICK sensor passage time of p arly. (E1A2) PPER UPPER does not arrive at BUILD PPER UPPER does not depart from BU (4) PPER PICK sensor passage time of pa rly. (E1A5)	D-IN HOPPER LOWER UILD-IN HOPPER Paper from BUILD-IN D-IN HOPPER UPPER JILD-IN HOPPER aper from BUILD-IN
2. continued.	<ol> <li>Table(AP) Assembly is not level</li> <li>Pick Blower is fault.</li> </ol>	Adjust to level Table(AP) Assembly. Check: Pick Blower (B501) Function by Driver Test 1 "42".	7.4.1.8, 7-302 7.4.2.8, 7-327 Driver Test 1 6.3, 6-5
	5. Poor connection of connectors, or cable damaged.	Replace: Pick Blower (B501). Repair the cable or reset the connector in the correct position.	Figure 5-119 on page 5-215 Figure 5-120 on page 5-216
	6. Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.10.3, 7-692 7.10.9, 7-712
3. No pick of paper, or reaching the sensor overdue.	1. Inclination of table is incorrect (Poor degree of levelness).	Adjust: Wire to level.	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631
	2. Paper fault. Paper is contaminated, or torn, or skewed.	Replace: Paper. Check: Paper in Hopper.	
	3. Paper Size Guide position attachment fault.	Check: Paper size guide.	
	4. The height of hopper Table is incorrect.	Adjustment: The height of the hopper Table	7.4.1.8, 7-303
	5. Air pressure is incorrect.	Adjustment: Air pressure	Driver Test 2 6.4, 6-10
	Belt is incorrect.	correct direction.	7.6.1.57, 7-446
	the Pulley Assembly are loose. *		7.6.1.59, 7-448
4. Paper does not arrive at the HP feed roller.	<ul> <li>Turn the Pick Belt in front and</li> <li>Paper is caught in the Paper Guide, etc.,</li> <li>Paper Guide is separated.</li> </ul>	d back, and check the wobble of the Pul Check: Paper Guide attachment.	ley Assembly.
	2. An obstacle is blocking the paper path(piece of paper, etc.,).	Check: Paper path.	
	3. Conveyance ability of a roller of the hopper fault. Pressure spring is unfastened(or damaged).	Replace: Roller, Pressure Spring.	7.4.3.17, 7-363

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<b>Replace</b> the follow Pg.5-214	/ing.		
PRIMARY FACTOR;	<ol> <li>Paper from BUILD-IN HOP PICK sensor. (E1A0)</li> <li>Paper from BUILD-IN HOP LOWER PICK sensor. (E1A</li> <li>The BUILD-IN HOPPER LO HOPPER LOWER is too ea</li> <li>Paper from BUILD-IN HOP PICK sensor. (E1A3)</li> <li>Paper from BUILD-IN HOP UPPER PICK sensor. (E1A</li> <li>The BUILD-IN HOPPER UF HOPPER UPPER is too ear</li> </ol>	PER LOWER does not arrive at BUILI PER LOWER does not depart from BI A1) DWER PICK sensor passage time of p Irly. (E1A2) PER UPPER does not arrive at BUILD PER UPPER does not depart from BL 4) PPER PICK sensor passage time of pa rly. (E1A5)	D-IN HOPPER LOWER JILD-IN HOPPER aper from BUILD-IN D-IN HOPPER UPPER IILD-IN HOPPER aper from BUILD-IN
5. Paper is on the sensor.	1. Contamination of the sensor window, and its environs.	Clean: Built-in Hopper Lower Pick Sensor (S513), Built-in Hopper Upper Pick Sensor (S533), and its environs.	
	<ol> <li>Sensor fault.</li> <li>(1) Built-in Hopper Lower Pick Sensor is fault.</li> <li>(2) Built-in Hopper Upper Pick Sensor is fault.</li> </ol>	Check:Built-in Hopper Lower Pick Sensor is fault (S513) Function by Sensor Test 1 "PR 17 21". Check:Built-in Hopper Upper Pick Sensor is fault (S533) Function by Sensor Test 1 "PR 19 21".	Sensor Test 1 6.7, 6-12
		Replace: Built-in Hopper Lower Pick Sensor is fault (S513). Replace: Built-in Hopper Upper Pick Sensor is fault (S533).	7.4.3.7, 7-352 7.4.3.7, 7-352
	3. PCB fault.	Replace: HS12X Assembly	7.7.6.11, 7-579
	4. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-119 on page 5-215 Figure 5-120 on page 5-216
6. Paper is double feeding.	1. The distance between the Pick Belt and Separation Gate is wide.	Adjustment: Adjust the distance of the Pick Belt and Separation Gate.	Figure 5-120-2 on page 5-219

RICOH	Technie	cal <b>B</b> ulletin	PAGE: 26/93
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<b>Replace</b> the follow Pg.5-218	ving.		
PRIMARY FACTOR;	<ol> <li>Paper from AHP1 Lower d</li> <li>Paper from AHP1 Upper d</li> <li>Paper from AHP1 Lower d</li> <li>Paper from AHP1 Upper d         <ul> <li>Trailing edge of the precoder</li> <li>AHP1 Lower pick sensor p</li> <li>AHP1 Lower pick sensor p</li> </ul> </li> </ol>	oes not arrive at AHP1 Lower pick s oes not arrive at AHP1 Upper pick so oes not depart from AHP1 Lower pic oes not depart from AHP1 Upper pic eeding page is not detected to the til aches the sensor. bassage of the paper from AHP1 Low bassage of the paper from AHP1 Low	ensor. (E1A6) ensor. (E1A9) ck sensor. (E1A7)* ck sensor. (E1AA)* ming to which the paper ver is too early. (E1A8) ver is too early. (E1AB)
2. continued.	4. AHP Pick Blower is fault.	Check:AHP Pick Blower (B502) Function by Driver Test 1 "43"	Driver Test 1 6.3, 6-5
	5. Poor connection of connectors, or cable damaged.	Replace: AHP Pick Blower (B502) Repair the cable or reset the connector in the correct position.	7.8.2.17, 7-620 Figure 5-121 on page 5-220
	6. Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.10.3, 7-692 7.10.9, 7-712
3. No pick of paper, or reaching the sensor overdue.	<ol> <li>Inclination of table is incorrect (Poor degree of levelness).</li> </ol>	Adjust: Wire to level.	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631
	2. Paper fault. Paper is contaminated, or torn, or skewed.	Replace: Paper. Check: Paper in Hopper.	
	3. Paper Size Guide position attachment fault.	Check: Paper size guide.	
_	4. The height of hopper Table is incorrect.	Adjustment: The height of the hopper Table	7.8.3.8, 7-631
	5. Air pressure is incorrect.	Adjustment: Air pressure	Driver Test 2 6.4, 6-10
	6. The direction of the Pick Belt is incorrect.	Reassemble the Pick Belt in the correct direction.	7.8.2.11, 7-604 7.8.2.14, 7-607
	7. Hex Socket Set Screws of the Pulley Assembly are loose. *	Check: Pulley Assembly	7.8.2.7, 7-600
4. Deperdees not	* Turn the Pick Belt in front and	d back, and check the wobble of the Pu	Illey Assembly.
4. Paper does not arrive at the hopper feed roller.	Paper Guide, etc., Paper Guide is separated.		
	2. An obstacle is blocking the paper path(piece of paper, etc.,).	Check: Paper path.	
	<ol> <li>Conveyance ability of a roller of the hopper fault. Pressure spring is unfastened(or damaged).</li> </ol>	Replace: Roller, Pressure Spring.	
5. Paper is on the sensor.	1. Contamination of the sensor window, and its environs.	Clean: AHP Lower Pick Sensor (S570), AHP Upper Pick Sensor (S579), and its environs.	
RICOH	Technie	cal <b>B</b> ulletin	PAGE: 27/93
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<b>Replace</b> the follow Pg.5-219	ving.		
PRIMARY FACTOR;	<ol> <li>Paper from AHP1 Lower d</li> <li>Paper from AHP1 Upper d</li> <li>Paper from AHP1 Lower d</li> <li>Paper from AHP1 Lower d</li> <li>Paper from AHP1 Upper d</li> <li>Trailing edge of the precoof the following page reading</li> <li>AHP1 Lower pick sensor p</li> <li>AHP1 Lower pick sensor p</li> </ol>	loes not arrive at AHP1 Lower pick s loes not arrive at AHP1 Upper pick so loes not depart from AHP1 Lower pic loes not depart from AHP1 Upper pic eeding page is not detected to the til aches the sensor. passage of the paper from AHP1 Low passage of the paper from AHP1 Low	ensor. (E1A6) ensor. (E1A9) ck sensor. (E1A7)* ck sensor. (E1AA)* ming to which the paper ver is too early. (E1A8) ver is too early. (E1AB)
5. Continued.	<ol> <li>Sensor fault.</li> <li>(1) AHP Lower Pick Sensor is fault.</li> <li>(2) AHP Upper Pick Sensor is fault.</li> </ol>	Check:AHP Lower Pick Sensor is fault (S570) Function by Sensor Test 1 "AHP 12 20". Check:AHP Upper Pick Sensor is fault (S579) Function by Sensor Test 1 "AHP 11 22".	Sensor Test 1 6.7, 6-12
	3. PCB fault.	Sensor is fault (S570). Replace: AHP Upper Pick Sensor is fault (S579). Replace: HS101PK	7.8.5.3, 7-661
	4. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-121 on page 5-220
6. Paper is double feeding.	1. The distance between the Pick Belt and Separation Gate is wide.	Adjustment: Adjust the distance of the Pick Belt and Separation Gate.	Figure 5-120-2 on page 5-219
Adjusting method of Note: When this adjust 1. Remove the Hoppe 7-320) and (Refer to 2. Unscrew the one Pl below.	t distance between Pick Bel stment is performed, update the r Assembly. (Refer to item 7 to item 7.8.3.1 on page 7-623 hilips screw and adjust the dis stance with a thickness gauge o	t and Separation Gate. micro code than "K". 4.1.1 on page 7-295), (Refer to iten 3) stance between the Pick Belt and S r ruler.	] n 7.4.2.1 on page Separation Gate as shown
Measure the rig Do not push up	ght and left two places of the Sep o the Pick Belt when measuring i	paration Gate. t.	
3. Perform the disasse	embling procedures in the rev	PICK BELT	UN GATE
Figure 5-120-2. Adjustin	g method of distance between P	ick Belt and Separation Gate	

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<b>Replace</b> the follow Pg.5-222	ving.		
PRIMARY FACTOR;	<ol> <li>Paper from AHP2 Lower d</li> <li>Paper from AHP2 Upper d</li> <li>Paper from AHP2 Lower d</li> <li>Paper from AHP2 Upper d</li> <li>* Trailing edge of the precord the following page resolution</li> <li>AHP2 Lower pick sensor p</li> <li>AHP2 Lower pick sensor p</li> </ol>	loes not arrive at AHP2 Lower pick s loes not arrive at AHP2 Upper pick so loes not depart from AHP2 Lower pic loes not depart from AHP2 Upper pic eeding page is not detected to the tin aches the sensor. passage of the paper from AHP2 Low passage of the paper from AHP2 Low	ensor. (E1AF) ensor. (E1B2) ck sensor. (E1B0)* k sensor. (E1B3)* ming to which the paper ver is too early. (E1B1) ver is too early. (E1B4)
2. continued.	4. AHP Pick Blower is fault.	Check:AHP2 Pick Blower (B502) Function by Driver Test 1 "PR 44"	Driver Test 1 6.3, 6-5
	5. Poor connection of connectors, or cable damaged	Replace: AHP2 Pick Blower (B502) Repair the cable or reset the connector in the correct position.	7.8.2.17, 7-610 Figure 5-122 on page 5-224
	6. Paper is normal.	Adjustment of the Side Nozzle or Solenoid.	7.10.3, 7-692 7.10.9, 7-712
3. No pick of paper, or reaching the sensor overdue.	1. Inclination of table is incorrect (Poor degree of levelness).	Adjust: Wire to level.	7.4.1.8, 7-302 7.4.2.8, 7-327 7.8.3.8, 7-631
	2. Paper fault. Paper is contaminated, or torn, or skewed.	Replace: Paper. Check: Paper in Hopper.	
	3. Paper Size Guide position attachment fault.	Check: Paper size guide.	
	4. The height of hopper Table is incorrect.	Adjustment: The height of the hopper Table	7.8.3.8, 7-631
	5. Air pressure is incorrect.	Adjustment: Air pressure	Driver Test 2 6.4, 6-10
	6. The direction of the Pick Belt is incorrect.	Reassemble the Pick Belt in the correct direction.	7.8.2.11, 7-604 7.8.2.14, 7-607
	7. Hex Socket Set Screws of the Pulley Assembly are loose. *	Check: Pulley Assembly	7.8.2.8, 7-601
4. Paper does not arrive at the hopper feed roller.	Turn the Pick Belt in front an     I. Paper is caught in the     Paper Guide, etc.,     Paper Guide is     separated.	d back, and check the wobble of the Pu Check: Paper Guide attachment.	illey Assembly.
	2. An obstacle is blocking the paper path(piece of paper, etc.,).	Check: Paper path.	
	3. Conveyance ability of a roller of the hopper fault. Pressure spring is unfastened(or damaged).	Replace: Roller, Pressure Spring.	
5. Paper is on the sensor.	1. Contamination of the sensor window, and its environs.	Clean: AHP2 Lower Pick Sensor (S570), AHP2 Upper Pick Sensor (S579), and its environs.	

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**Replace** the following. Pg.5-296

#### 5.3.114. DETACH VOLT CHECK (E215)

PRIMARY FACTOR; Abnormalities occurred in the detach High Voltage.					
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. This phenomenon occurs in initializing, or generates during printing.	1. Transfer Unit fault. (1) Poor connection between HV Holder (C) Assembly and Wire Contact Spring (for Detach).	Check: route between Terminal of High Voltage Cable (CH8) and Corotron wire (for Detach)	Figure 5-164 on page 5-297 Figure 5-165 on page 5-298		
	<ul> <li>(2) Corotron Wire (for Detach) and Shield</li> <li>Plate of the Corotron</li> <li>(W) Assembly is contaminated.</li> <li>(2) Exercise substances</li> </ul>	Clean: Corotron (W) Assembly	4.4.1.4, 4-23		
	are in the Transfer Unit.	Clean: Transfer Belt	7.2.6.2, 7-144		
	(4) Transformation of Wire Contact Spring (for Detach)	Replace: Wire Contact Spring (for Detach)	7.2.6.8, 7-153		
	(5) Corotron Wire (for Detach) of the Corotron (W) Assembly is cut, or damaged.	Replace: Corotron Wire (Detach)	7.2.6.8, 7-153		
	2. High Voltage Cable fault.Short circuit or leak. Terminal has separated, or it has disconnected.	Check: High Voltage Cable(CH8)	Figure 5-164 on page 5-297		
	<ol> <li>+24V or the signal is not connected with the High Voltage Power Supply. Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-165 on page 5-298		
	4. Abnormalities in the High Voltage Power Supply.	Check: HV monitor output *1 Replace: High Voltage Power Supply(DTC).	3.6.3, 3-22-2 7.6.1.3, 7-381		
	5. PCB fault.	Replace: CP63X Assembly	7.6.1.7, 7-386		
*1 The HV monitor outp The HV monitor outp	*1 The HV monitor output confirmation cannot be executed while E215 is detected.				

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**Replace** the following. Pg.5-299

#### 5.3.115. TRANSFER DRIVE ROLLER BIAS VOLT CHECK (E217)

PRIMARY FACTOR;	Abnormalities occurred in the	detach High Voltage.	
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. When this error occurs, then the High Voltage Cable is removed from the CH7	1. The Drive Roller of the Transfer Unit is grounded. Foreign substances are on the Drive Roller. Foreign substances are in the Transfer Unit	Clean: Drive Roller Clean: Transfer Unit	7.2.6.2, 7-144
error.	Carbon Electrode has worn out.	Replace: Carbon Electrode	7.2.6.3, 7-147
	2. High Voltage Cable fault. Short circuit or leak.	Check: High Voltage Cable (CH7)	Figure 5-166 on page 5-300
2. Even if the High Voltage Cable is removed from CH7 where this error occurs, then the phenomenon does not change.	<ol> <li>+24V or the signal is not connected with the High Voltage Power Supply 3. Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cables or reset the connector in the correct position.	Figure 5-166 on page 5-300
	2. Abnormalities in the High Voltage Power Supply.	Check: HV monitor output *1 Replace: High Voltage Power Supply 3	3.6.3, 3-22-2 7.6.1.6, 7-385
	3. Abnormalities in the PCB.	Replace: CP63X Assembly	7.6.1.7, 7-386
*1 The HV monitor output confirmation cannot be executed while E217 is detected. The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.			

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Replace the following. Pg.5-301

#### 5.3.116. GRID VOLT CHECK (E218)

DETECTION CONTENTS; An abnormal voltage was detected at the Grid.				
DETECTION CONDITIONS; When the Grid High Voltage was outputted, the Grid Alarm signal ON (H) was				
	detected at the specifie	ed time continuously.		
RESET CONDITIONS;	Check Reset.			
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page	
1. This error occurs in initializing, or generates during printing.	1. Contact of the Charger or the Grid surface is contaminated.	Clean: Charger contact. Clean: Grid	4.4.1.1, 4-20	
	2. Grid, or Charger Wire is damaged.	Replace: Grid Replace: Charger Wire	7.2.1.2, 7-7 7.2.1.3, 7-8	
	3. Grid is discharging. Drum Unit Assembly, or the Drum Cap is damaged. Chargor voltage is	Check: Drum Unit Assembly Rewind: OPC Roll Check: Grid, changes in the Spring, Charger contamination	7.2.2.1, 7-81 7.2.2.2, 7-83 4.4.1.1, 4-20	
	incorrect.	Clean: Charger Replace: Charger	4.4.1.1, 4-20 7.2.1.1, 7-5	
	<ol> <li>High Voltage Cable fault. Short circuit or leak. Terminal has separated, or it is disconnected.</li> </ol>	Check: High Voltage Cable (CH2)	Figure 5-167 on page 5-301 Figure 5-168 on page 5-302	
	<ol> <li>+24V or the signal is not connected with the High Voltage Power Supply. Poor connection of connectors, or cable damaged.</li> </ol>	Check: High Voltage Power Supply 1 CN1 to P/J813 between the cable, and connector.	Figure 5-167 on page 5-301 Figure 5-168 on page 5-302	
	<ol> <li>Abnormalities in the High Voltage Power Supply.</li> </ol>	Check: HV monitor output *1 Replace: High Voltage Power Supply 1	<u>3.6.3, 3-22-2</u> 7.6.1.5, 7-383	
	7. Abnormalities in the PCB.	Replace: CP63X Assembly	7.6.1.7, 7-386	
*1 The HV monitor outp	out confirmation cannot be execute	ed while E218 is detected.		
The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.				





Figure 5-167. Error Code E218 (1)



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**Replace** the following. Pg.5-303

#### 5.3.117. ERASE VOLT CHECK (E21D)

DETECTION CONTENTS; An abnormal voltage was detected at the Drum Erase.				
DETECTION CONDITIONS; When the Drum High Voltage was outputted, the Drum Alarm signal ON (H) was				
	detected at the specified time continuously.			
RESET CONDITIONS;	Check Reset.			
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance	
	· - · · · · · · · · · · · · · · · · · ·		Ref + Page	
1. When this error	1. Erase Wire Assembly	Check: Erase Wire Assembly	7.2.1.5, 7-13	
occurs, then the	attachment fault.			
High Voltage	2. Erase Wire Assembly			
Cable is removed	fault.	Clean: Erase Wire Assembly	4.4.1.2, 4-21	
from the CH4	Corotron Wire is broken.	Replace: Erase Wire Assembly	7.2.1.5, 7-13	
turning off this	Corotron Wire, or	Corotron Wire	7.2.1.6, 7-14	
error.	surroundings are			
	contaminated.			
	3. Erase Wire Assembly is	Check: Drum Unit Assembly	7.2.2.1, 7-81	
	discharging.			
	Drum Unit Assembly, or	Rewind: OPC Roll	7.2.2.2, 7-83	
	the Drum Cap is			
	scratched and damaged.			
	4. High Voltage Cable fault.	Check: High Voltage Cable (CH4)	Figure 5-169 on	
	Short circuit or leak.		page 5-303 and	
	Terminal has separated,		Figure 5-170 on	
	or it is disconnected.		page 5-304	
2. Even if the High	1. +24V or the signal is not	Check: Cable.	Figure 5-169 on	
Voltage Cable is	connected with the High		page 5-303 and	
removed from	Voltage Power Supply.		Figure 5-170 on	
CH4 where this	Poor connection of	Repair the cables or reset the	page 5-304	
error occurs, then	connectors, or cable	connector in the correct position.		
the phenomenon	damaged.			
does not change.	2. Abnormalities in the High	Check: HV monitor output *1	3.6.3, 3-22-2	
	Voltage Power Supply.	Replace: High Voltage Power	7.6.1.5, 7-383	
		Supply 1		
	3. Abnormalities in the PCB.	Replace: CP63X Assembly	7.6.1.7, 7-386	
*1 The HV monitor output confirmation cannot be executed while E21D is detected.				
The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.				



Figure 5-169. Error Code E21D (1)

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**Replace** the following. Pg.5-305

#### 5.3.118. DEVELOPER BIAS VOLT CHECK (E220)

DETECTION CONTENTS; Abnormalities occurred in the Developer Bias High Voltage. DETECTION CONDITIONS; When the Developer Bias High Voltage was ON, the alarm signal was detected				
<b>RESET CONDITIONS;</b>	RESET CONDITIONS; Check Reset.			
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page	
1. When this error occurs, then the High Voltage	1. High Voltage Cable fault. Short circuit or leak.	Check: High Voltage Cable (CH3)	Figure 5-171 on page 5-305	
Cable is removed from the CH3	2. Leak, or contact fault. OPC Roll is damaged.	Replace: OPC Roll Rewind: OPC Roll	7.2.2.2, 7-83	
turning off this error.	Developer Unit failure. Developer Unit is contaminated.	Replace: Developer Unit Assembly Clean: Developer Unit	7.2.4.1, 7-100	
	3. Foreign substances are mixed with the Developer mix.	Replace: Developer mix	7.2.4.29, 7-135	
2. Even if the High Voltage Cable is removed from	1. +24V or the signal is not connected with the High Voltage Power Supply.	Check: Cable.	Figure 5-171 on page 5-305	
CH3 where this error occurs, then the phenomenon	Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.		
does not change.	2. Abnormalities in the High	Check: HV monitor output *1	3.6.3, 3-22-2	
	Voltage Power Supply.	Replace: High Voltage Power Supply (CH)	7.6.1.5, 7-383	
	3. PCB fault.	Replace: CP63X Assembly	7.6.1.7, 7-386	
*1 The HV monitor output confirmation cannot be executed while E220 is detected. The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.				



Figure 5-171. Error Code E220

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**Replace** the following. Pg.5-306

#### 5.3.119. CHARGER VOLT CHECK (E225)

DETECTION CONTENTS; An abnormal voltage was detected at the charger.				
When the Charger High Voltage was outputted, the Charger Alarm Signal ON (H) was detected at the specified time continuously				
RESET CONDITIONS; Check Reset.				
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page	
1. This phenomenon occurs in	1. Charger set fault.	Check: Charger	7.2.1.1, 7-5	
initializing, or generates during	2. Charger contact is contaminated.	Clean: Contact	Figure 5-172 on page 5-307	
printing.	<ol> <li>Charger fault.</li> <li>(1) Charger Wire, or surroundings are contaminated.</li> </ol>	Clean: Charger	4.4.1.1, 4-20	
	<ul> <li>(2) Foreign substances are in the Charger.</li> <li>(3) Charger Wire is disconnected, or damaged.</li> </ul>	Replace: Charger Wire Charger	7.2.1.3, 7-8 7.2.1.1, 7-5	
	4. Discharge from the Charger Wire. Drum Unit Assembly, or the Drum Cap is scratched and damaged.	Replace: Drum Unit Rewind: OPC Roll	7.2.2.1, 7-81 7.2.2.2, 7-83	
	<ol> <li>+24V or the signal is not connected with the High Voltage Power Supply. Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cable or reset the connector in the correct position.	Figure 5-172 on page 5-307	
	<ol> <li>High Voltage Cable fault. Short circuit or leak. Terminal has separated, or it is disconnected.</li> </ol>	Check: High Voltage Cable(CH1)		
	7. Abnormalities in the High Voltage Power Supply.	Check: HV monitor output *1 Replace: High Voltage Power Supply 1.	3.6.3, 3-22-2 7.6.1.5, 7-383	
	8. PCB fault.	Replace: CP63X Assembly	7.6.1.7, 7-386	
Refer to Figure 5-172 o	<u>n page 5-307, and Figure 5-173 o</u>	n page 5-308.		
*1 The HV monitor output confirmation cannot be executed while E225 is detected. The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.				

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**Replace** the following. Pg.5-309

#### 5.3.120. TRANSFER VOLT CHECK (E22A)

DETECTION CONTENTS; An abnormal voltage was detected at the transfer.			
DETECTION CONDITIONS; When the Transfer Voltage was outputted, the Transfer Volt Alarm signal ON (H)			
RESET CONDITIONS;	When check reset after	paper removal is performed.	
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. This phenomenon	1. Transfer Unit fault.		
occurs in	(1) Poor connection	Check: route between Terminal of	Figure 5-174 on
initializing, or	Detween HV Holder (C)	High Voltage Cable (CH5) and	page 5-310 and
printing	Contact Spring (for		nage 5-311
printing.	Transfer).		page o o i i
	(2) Corotron Wire (for	Clean: Corotron (W) Assembly	4.4.1.4, 4-23
	Transfer) and Shield Plate		
	of the Corotron (W)		
	Assembly is		
	(3) Foreign substances	Clean: Transfer Belt	7262 7-144
	are in the Transfer Unit.		1.2.0.2, 1 144
	(4) Transformation of Wire	Replace: Wire Contact Spring (for	Figure 5-174 on
	Contact Spring (for	Transfer)	page 5-310 and
	Transfer)		Figure 5-175 on
	(E) Constron Wire (for	Deplace: Caratron Wire (Transfer)	page 5-311
	Transfer) of the Corotron	Replace. Coloron wire (Transier)	7.2.0.0, 7-100
	(W) Assembly is cut. or		
	damaged.		
-			
	2. High Voltage Cable fault.	Check: High Voltage Cable(CH5)	Figure 5-174 on
	Short circuit or leak.		page 5-310 and Figure 5-175 on
	or it is disconnected		nage 5-311
			page e e l'
	3. +24V or the signal is not	Repair the cable or reset the	
	connected with the High	connector in the correct position.	
	Voltage Power Supply.		
	Poor connection of		
	damaged		
	dumugou.		
	4. Abnormalities in the High	Check: HV monitor output *1	3.6.3, 3-22-2
	Voltage Power Supply.	Replace: High Voltage Power	7.6.1.6, 7-385
		Supply 3.	
	5 PCB fault	Replace: CP63X Assembly	76177-386
Refer to Figure 5-1740	n page 5-310, and Figure 5-175 or	page 5-311.	1.0.1.1, 1-300
*1 The HV monitor out	out confirmation cannot be execute	ed while E22A is detected.	
The HV monitor output confirmation is used when there is no error because the phenomenon is intermittent etc.			

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**Replace** the following. Pg.5-312

#### 5.3.121. TRANSFER BELT ERASE VOLT CHECK (E230)

DETECTION CONTENTS; An abnormal voltage was detected at the transfer belt erase.						
DETECTION CONDITION	ONS; When the Transfer Belt	Erase Voltage was outputted, the Ti	ransfer Volt Alarm			
RESET CONDITIONS	Check Reset	cied at the specified time continuou	Siy.			
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page			
1. This phenomenon	1. Discharger Assembly					
occurs in initializing, or generates during	fault. (1) Cleaning Bar has fallen out	Check: Cleaning Bar	Figure 5-177 on			
printing.	(2) Poor contact of the DC Stopper.	Check: DC Stopper	7.2.1.7, 7-16			
	(3) Corotron Wire of the Discharger Assembly, or Shield Plate is contaminated	Clean: Discharger	4.4.1.3, 4-22			
	(4) Foreign substances are in the Discharger Assembly.	Clean: Discharger	4.4.1.3, 4-22			
	(5) Corotron Wire of the Discharger Assembly is cut, or damaged.	Replace: Corotron Wire (for Discharger)	7.2.1.8, 7-18			
	2. Transfer Unit fault. Poor contact of the Drive Roller.	Check: Carbon Electrode	7.2.6.3, 7-147			
	<ol> <li>High Voltage Cable fault. Short circuit or leak. Terminal has separated, or it is disconnected.</li> </ol>	Check: High Voltage Cable(CH6)	Figure 5-176 on page 5-313 Figure 5-177 on page 5-314			
	<ul> <li>4. +24V or the signal is not connected with the High Voltage Power Supply. Poor connection of connectors, or cable damaged.</li> </ul>	Repair the cable or reset the connector in the correct position.				
	5. Abnormalities in the High Voltage Power Supply.	Check: HV monitor output *1 Replace: High Voltage Power Supply 3.	3.6.3, 3-22-2 7.6.1.6, 7-385			
	6. PCB fault.	Replace: CP63X Assembly	7.6.1.7, 7-386			
Refer to Figure 5-176 o	n page 5-313, and Figure 5-177 o	n page 5-314.				
*1 The HV monitor outp	out confirmation cannot be execute	ed while E230 is detected.	in intermittent etc			

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**Replace** the following. Pg.5-316



Figure 5-178. Error Codes E240, and E245

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**Replace** the following. Pg.5-319

#### 5.3.123. MAGROLL MOTOR ALARM (E245)

DETECTION CONTENTS; The Magroll motor does not rotate correctly. DETECTION CONDITIONS; The Magroll Motor Alarm signal ON(H) is detected over the specified time. RESET CONDITIONS; Check Reset.					
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page		
1. Since Magroll does not rotate,	1. Motor fault.	Replace: DEV Motor Assembly (M309)	7.2.4.5, 7-106		
so this phenomenon occurs.	<ul> <li>2. Drawer connector fault.</li> <li>Loose connection of contact pin damaged.</li> </ul>	Replace: DEV Drawer K Cable Assembly	7.2.1.28, 7-42		
	<ol> <li>Drive System fault. Magroll load fault.</li> <li>The Gear is worn out or damaged, and the power</li> </ol>	Check: Magroll, each gear, and B.B (MRL/MRU Adjust Assembly) Replace:When the Magroll, or the B.B Holder MGR	7.2.1.44, 7-60 7.2.1.45, 7-61 7.2.4.1, 7-100 7.2.4.2, 7-103 7.2.4.3, 7-104		
	B.B (MRL/MRU Adjust Assembly) Lock.	(BB of Magroll) need to be exchanged, the Developer Unit Assembly, and other applicable parts need to be replaced.	7.2.4.4, 7-105 7.2.4.5, 7-106 7.2.4.6, 7-107 7.2.4.7, 7-109 7.2.4.13, 7-115 7.2.4.14, 7-116 7.2.4.15, 7-118		
	4. PCB fault.	Replace: DV14X Assembly CP63X Assembly	7.2.4.16, 7-119 7.6.1.8, 7-387 7.6.1.7, 7-386		
	5. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-178 on page 5-316		
2. Although the Magroll rotates,	1. Motor fault.	Replace: DEV Motor Assembly (M309)	7.2.4.5, 7-106		
this phenomenon occurs.	<ol> <li>Drawer connector fault.</li> <li>Loose connection of contact pin damaged.</li> </ol>	Replace: DEV Drawer K Cable Assembly	7.2.1.28, 7-42		
	3. Drive System fault. Since the Magroll is in load fault, the motor does	Check: Magroll, and MRL/MRU Adjust Assembly.			
	not reach the correct rotation. Wear of the O Ring causing the actuator of the sensor part not to	Replace:When the MRL Adjust or the MRU Adjust Assembly Magroll need to exchange, the Developer Unit Assembly needs to be replaced.	7.2.4.1, 7-100 7.2.1.44, 7-60 7.2.1.45, 7-61		
	rotate.	Replace: O Ring	7.2.4.2, 7-103		
	4. PCB fault.	Replace: DV14X Assembly CP63X Assembly	7.6.1.8, 7-387 7.6.1.7, 7-386		
	5. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-178 on page 5-316		
	6. Overflow of the Developer Mix. or overload of the upper Magnet Roll	Adjustment: Magnet Pole Angle Replace: Developer Unit Assembly	Figure 5-181 on page 5-320 7.2.4.1, 7-100		
Refer to Figure 5-178 c 181 on page 5-320.	on page 5-316, Figure 5-179 on pa	ge 5-317, Figure 5-180 on page 5-318 a	nd Figure 5-		

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Figure 5-183. Error Codes E24A, E24F, and E25A

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Replace the following. . Pg.5-326

#### 5.3.126. TONER CONTROL SENSOR ERROR (E25A)

DETECTION CONTENTS; DETECTION CONDITIONS;Abnormalities of the Toner Control Sensor are detected.1. Adjustment is not completed, even if TNR-VREF-PWM comes more than 90% or below 10% during adjustment of the Toner Concentration Sensor (Toner Control sensor) or it passes the specified time.2. It detects toner un-discharging (more than Toner Concentration Sensor (Toner Control sensor) output voltage 0.99V) at the time of after the Developer mix discharge end (from start specified time.).3. It detects toner un-discharging (more than Toner Concentration Sensor (Toner Control sensor) output voltage 0.99V) after Developer mix injection start specified time., and detected toner exhaust (under Toner Concentration Sensor output 0.99V) before detection or injection end specified time. (from start to specified time.).RESET CONDITIONS;Check Reset.						
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page			
1. This phenomenon occurs during discharging Developer mix or charging	1. Developer mix fault. Check that the regular Developer mix is supplied.	Replace: Exchanges for the regular Developer mix.	7.2.4.29, 7-135			
ena ging.	<ul> <li>2. Drawer connector fault.</li> <li>Loose connection of contact pin damaged.</li> </ul>	Replace: DEV Drawer K Cable Assembly	7.2.1.28, 7-42			
	3. Sensor fault.	Check: Toner Control Sensor (S319) function by Sensor Test 2 "02"	Sensor Test 2 6.8, 6-18			
Replace: Toner Control Sensor 7.2.4.21, 7- (S319)						
	4. PCB fault.	Replace: DV14X Assembly CP63X Assembly	7.6.1.8, 7-387 7.6.1.7, 7-386			
	5. Poor connection of connectors, or cable damaged.	Repair the cable or reset the connector in the correct position.	Figure 5-183 on page 5-323			

Refer to Figure 5-182 on page 5-322, and Figure 5-183 on page 5-323.



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**Replace** the following. Pg.5-398

#### 5.3.178. BUILD-IN HOPPER LOWER BELT POSITION ERROR (E372)

PRIMARY FACTOR;	<ul> <li>Built-in Hopper Lower Belt Position Sensor cannot detect the initial position, or it is continuing to detect.</li> <li>1. In the position sensor ON(H) direction, even if it carries out a specific step drive, sensor OFF(L) is undetected.</li> <li>2. In the position sensor OFF(L) direction, even if it carries out a specific step drive, sensor ON(H) is undetected.</li> </ul>						
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page				
1. This phenomenon	1. Pick Belt is damaged.	Replace: Pick Belt	7.6.1.57, 7-446				
occurs.	2. Dust adhered to the sensor, and its environs.	Clean: Built-in Hopper Lower Belt Position Sensor (S522), and its environs.					
	3. Sensor fault Check whether there is any damage to the sensor (Has the actuator come apart?).	Check:Built-in Hopper Lower Belt Position Sensor (S522) function by Sensor Test 1 "PR17 22"	Sensor Test 1 6.7, 6-12				
		Replace: Built-in Hopper Lower Belt Position Sensor (S522)	7.6.1.55, 7-444				
	4. Motor fault.	Check: Built-in Hopper Lower Pick Motor (M501) function by Driver Test 1 "00	Driver Test 1 6.3, 6-5				
		Replace: Built-in Hopper Lower Pick Motor (M501)	7.6.1.58, 7-447				
	5. PCB fault.	Replace: HP12X Assembly CP63X Assembly	7.6.1.9, 7-388 7.6.1.7, 7-386				
	6. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-223 on page 5-398				
	7. Pick Belt is not assembled correctly. (Pick Belt slip off)	Repair: Pick Belt	7.6.1.57, 7-446				
	8. Hex Socket Set screws of Pulley Assembly are loose. *1	Check: Pulley Assembly	7.6.1.58, 7-447				
*1 Turn Pick Belt in fror	nt and back and check the wobble	of the Pulley Assembly.					



Figure 5-223. Error Code E372



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Replace the following. Pg.5-402

#### 5.3.181. BUILD-IN HOPPER UPPER BELT POSITION ERROR (E375)

PRIMARY FACTOR;	<ul> <li>Built-in Hopper Lower Belt Position Sensor cannot detect the initial position, or it is continuing to detect.</li> <li>1. In the position sensor ON(H) direction, even if it carries out a specific step drive, sensor OFF(L) is undetected.</li> <li>2. In the position sensor OFF(L) direction, even if it carries out a specific step drive, sensor ON(H) is undetected.</li> </ul>					
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page			
1. This phenomenon occurs.	1. Pick Belt is damaged.	Replace: Pick Belt	7.6.1.54, 7-443			
	2. Dust adhered to the sensor, and its environs.	Clean: Built-in Hopper Upper Belt Position Sensor (S542), and its environs.				
	<ol> <li>Sensor fault</li> <li>Check whether there is any damage to the sensor (Has the actuator come apart?).</li> </ol>	Check:Built-in Hopper Upper Belt Position Sensor (S542) function by Sensor Test 1 "PR19 22"	Sensor Test 1 6.7, 6-12			
		Replace: Built-in Hopper Upper Belt Position Sensor (S542)	7.6.1.52, 7-441			
	4. Motor fault.	Check: Built-in Hopper Upper Pick Motor (M502) function by Driver Test 1 "01"	Driver Test 1 6.3, 6-5			
		Replace: Built-in Hopper Upper Pick Motor (M502)	7.6.1.59, 7-448			
	5. PCB fault.	Replace: HP12X Assembly CP63X Assembly	7.6.1.9, 7-388 7.6.1.7, 7-386			
	<ol> <li>Poor connection of connectors, or cable damaged.</li> </ol>	Repair the cables or reset the connector in the correct position.	Figure 5-225 on page 5-402			
	7. Pick Belt is not assembled correctly. (Pick Belt slip off)	Repair: Pick Belt	7.6.1.54, 7-443			
*1 Turn Diak Dalt in from	8. Hex Socket Set screws of Pulley Assembly are loose. *1	Check: Pulley Assembly	7.6.1.59, 7-448			



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**Replace** the following. Pg.5-410

#### 5.3.187. AHP UPPER BELT POSITION ERROR (E37B)

PRIMARY FACTOR;	<ul> <li>AHP Upper Belt Position Sedetect.</li> <li>1. In the position sensor ON sensor OFF(L) is undetect</li> <li>2. In the position sensor OF sensor ON(H) is undetect</li> </ul>	ensor cannot detect the initial position I(H) direction, even if it carries out a s ted. F(L) direction, even if it carries out a ed.	n, or it is continuing to specific step drive, specific step drive,
PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. This phenomenon occurs.	1. Pick Belt is damaged.	Replace: Pick Belt	7.8.2.11, 7-604
	2. Dust adhered to the sensor, and its environs.	Clean: AHP Upper Belt Position Sensor (S580), and its environs.	
	3. Sensor fault Check whether there is any damage to the sensor (Has the actuator come apart?).	Check:AHP Upper Belt Position Sensor (S580) function by Sensor Test 1 "AHP11 21"	Sensor Test 1 6.7, 6-12
		Replace: AHP Upper Belt Position Sensor (S580)	7.8.2.9, 7-602
	4. Motor fault.	Check: AHP Upper Pick Motor (M522) function by Driver Test 1 "02"	Driver Test 1 6.3, 6-5
		Replace: AHP Upper Pick Motor (M522)	7.8.2.8, 7-601
	5. PCB fault.	Replace: HS10X Assembly	7.8.2.21, 7-616
	6. Poor connection of connectors, or cable damaged.	Repair the cables or reset the connector in the correct position.	Figure 5-229 on page 5-410
	7. Pick Belt is not assembled correctly. (Pick Belt slip off)	Repair: Pick Belt	7.8.2.11, 7-604
	8. Hex Socket Set screws of Pulley Assembly are loose. *1	Check: Pulley Assembly	7.8.2.7, 7-600 7.8.2.8, 7-601
*1 Turn Pick Belt in fro	nt and back and check the wobble	of the Pulley Assembly.	



Figure 5-229. Error Code E37B

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Replace the following. Pg.5-410

#### 5.4.2. Problems in Print Quality

Table 5-22. List of Printing Quality Problems

Kinds of		Reference Phenomenon				G	u		
Phenomenon	Α	В	С	D	E	F	- <b>u</b>	<b>"</b>	1.
Print contrast is too dark.	<b>1.</b> 5-474								
Print contrast is too light.	<b>2.</b> 5-475								
Background	<b>3.</b> 5-476								
Wavy Printing	<b>4.</b> 5-477 <b>5.</b> 5-477								
Poor Fusing	<b>6.</b> 5-478	<b>13.</b> 5-486				<b>26.</b> 5-495			
White Defect	7. 5-481 36. 5-503	14. 5-487 15. 5-488 16. 5-488		<b>19.</b> 5-491	<b>20.</b> 5-491 <b>21.</b> 5-492 <b>22.</b> 5-492		<b>32.</b> 5-499 <b>33.</b> 5-500		<b>30.</b> 5-498
Black Streak or dot		<b>17.</b> 5-489			<b>23.</b> 5-493	<b>27.</b> 5-496			
Offset					<b>24.</b> 5-494	<b>28.</b> 5-497			
White Spot and carrier dispersion							<b>34.</b> 5-501		
Toner Defect	<b>8.</b> 5-482								
Character Blur					<b>25.</b> 5-495				
Smear	<b>9.</b> 5-483		<b>18.</b> 5-490				<b>35.</b> 5-502 <b>36.</b> 5-503	<b>29.</b> 5-498	<b>31.</b> 5-499
Skew	<b>10.</b> 5-483								
Bleeding	<b>11.</b> 5-484								
Trailing Edge Too Light	<b>12.</b> 5-485								

A: Covering the entire surface B: In the vertical direction

D: Paper trailing edge

E: Drum related phenomenon

C: Paper leading edge

F: Heat Roll related phenomenon

G: Random phenomenon

- H: Other related phenomenon
- I: Paper feed direction

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**Replace** the following. Pg.5-474

#### 5.4.3. Print Phenomenon & Corrective actions for Print Quality Troubles

Phenomenon 1 Print contrast is too da	ark (Too much toner consumed) (Covering the ent	ire surface)		
	93年01月01         澳字日本行事束所         東京所代力事業所         日立風事業の         12345,67         日二日二日二日二日二日二日         12345,67         日二日二日二日二日         12345,67         日二日二日二日         12345,67         日二日二日         日二日二日         日二日         東京市         日二日         日         日         日         日         日         日         日			
Cause and Inspection Area	Remedy	Maintenance Ref. + Page		
1. Bias voltage is too high.	Check the output of the High Voltage Power     3.6.3, 3-22-2       Supply (CH).(CH3)     3.6.3			
	Replace the High Voltage Power Supply 1.	7.6.1.5, 7-383		
2. Bias contact failure.	Check the high voltage part from the High Voltage Power Supply 1 to the Developer Unit Assembly.	According to the Error Code displayed. 5.3, 5-7		
3. The surface temperature of the OPC is too high.	Clean or replace the Charger Unit Assembly.	4.4.1.1, 4-20 7.2.1.1, 7-5 4.4.1.2, 4-21		
	Eraser. Clean the Surface Voltage Sensor.	4.4.1.10, 4-33 4.4.1.11, 4-34		
	Check the output of the High Voltage Power Supply (CH).(CH1.CH2)	3.6.3, 3-22-2		
	Replace the High Voltage Power Supply 1.	7.6.1.5, 7-383		
4. Toner density is too high.	Replace the Developer mix. Replace the Toner Control Sensor.	7.2.4.29, 7-135 7.2.4.21, 7-126		
5. The developer gap or the doctor gap do not satisfy the specified value.	Developer Gap: Replace the Drum Unit Assembly. Doctor Gap: Replace the Developer Unit	7.2.2.1, 7-81 7.2.4.1, 7-100		
6 Doveloper failure	Assembly.	7 2 4 1 7 100		
7. The Opt Window is steined	Clean the Opt Window	<i>1.2.</i> 4.1, <i>1</i> -100 <i>4.4.1.12, 4.25</i>		
8 There is no problem in machine	Stroke width fine-tuning (thickness setup)	7.10.8.7-711		

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Phenomenon 2 Print contrast is too light (Too little toner consumed) (Covering the entire surface)		
	93年01月01         93年01月01         擦菜日         93年6         93年7         9344         9344         9344         9344         9344         934	
Cause and Inspection Area	Remedy	Maintenance
1. Bias voltage is too low.	Check the output of the High Voltage Power Supply (CH).(CH3)	3.6.3, 3-22-2
2. Toner density is too high.	Replace the High Voltage Power Supply 1.         Replace the Developer mix.         Replace the Toner Control Sensor.	7.6.1.5, 7-383 7.2.4.29, 7-135 7.2.4.21, 7-126
3. The developer gap or the doctor gap do not satisfy the specified value.	Clean the Doctor Blade. Developer Gap: Replace the Drum Unit Assembly. Doctor Gap: Replace the Developer Unit Assembly.	4.4.1.8, 4-29 7.2.2.1, 7-81 7.2.4.1, 7-100
4. The Corotron (W) Assembly is stained.	Clean or replace the Corotron (W) Assembly.	4.4.1.9, 4-32 7.2.6.7, 7-152
5. The position of the Transfer Belt is incorrect.	Check the Retract part.	According to the Error Code displayed. 5.3, 5-7
6. Laser power is too low. 7. The life of the developer mix was over.	Replace the Optical Unit. Replace the Developer mix.	7.1.1.1, 7-1 7.2.4.29, 7-135
8. The surface temperature of the OPC is too low.	Clean the Shield and Grid of the Charger Unit Assembly. Clean the Surface Voltage Sensor Check the output of the High Voltage Power	4.4.1.1, 4-20 4.4.1.11, 4-34 3.6.3, 3-22-2
	Supply (CH).(CH1.CH2) Replace the High Voltage Power Supply 1.	7.6.1.5, 7-383
9. The life of OPC was over.	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
10. The Developer mix needs replenishing.	Replace the Developer mix. Developer mix automatic replace failure: Replace Developer Unit Assembly.	7.2.4.29, 7-135 7.2.4.1, 7-100
11. The Upper Magroll does not rotate.	Check the MGR Gear (Z22) and the Leak Protector (MGR). Change it if it is broken.	7.2.4.4, 7-105
12. The temperature and humididity are too high or too low.	Recommended operating condition: Temperature; 19 to 25° C. (66.2 to 77.0° F) Humidity; 40 to 60% (RH) Adjustment of Transfer High Voltage	7.10.6, 7-696
13. There is no problem in machine	Stroke width fine-tuning (thickness setup)	7.10.8, 7-711

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Phenomenon 3 - Background (Covering	the entire surface)	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Outside light penetrates into the printer.	Print with the Front Cover closed.	
2. Toner density is too high.	Replace the Developer mix. Replace the Toner Control Sensor.	7.2.4.29, 7-135 7.2.4.21, 7-126
3. Printing Contrast is too high.	Refer to Phenomenon 1(5-474).	
<ol> <li>The surface voltage of the OPC does not satisfy with the specified value.</li> </ol>	Clean the Shield and Grid of the Charger Unit Assembly. Clean the Erase Wire Assembly or the LED Eraser. Clean the Surface Voltage Sensor. Wind up the OPC Roll.	4.4.1.1, 4-20 4.4.1.2, 4-21 4.4.1.10, 4-33 4.4.1.11, 4-34 Refer to the Controller Maintenance Manual.
	Check the output of the High Voltage Power Supply (CH).(CH1.CH2)	3.6.3, 3-22-2
	Replace the High Voltage Power Supply 1.	7.6.1.5, 7-383
5. The Transfer Belt is stained.	Clean the Transfer Belt. The Transfer Belt is contaminated by the drum cap with its stain. Print with the Front Cover closed. Check the door switch. Clean the Drum cap. Replace the Drum Unit Assembly.	7.2.6.2, 7-144 According to the Error Code displayed. 5.3, 5-7 7.2.2.1, 7-81
<ol> <li>The developer gap or the doctor gap do not satisfy the specified value.</li> </ol>	Developer Gap: Replace the Drum Unit Assembly. Doctor Gap: Replace the Developer Unit Assembly.	7.2.2.1, 7-81 7.2.4.1, 7-100
7. The life of the developer mix was over.	Replace the Developer mix.	7.2.4.29, 7-135
8. The OPC sheet is stained.	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
9. The life of the Cleaning Brush was over.	Replace the Cleaning Brush.	7.2.5.1, 7-138

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Phenomenon 7 White Defect (Covering the entire surface)		
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Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Developer Bias is low.	Check the output of the High Voltage Power Supply (CH).(CH3)	3.6.3, 3-22-2
	Check the High Voltage part from the High Voltage Power Supply (1) to Developer Unit Assembly.	According to the Error Code displayed. 5.3, 5-7
2. The Nip of the Transfer Belt is not enough.	Check the Retract part.	According to the Error Code displayed, 5.3, 5-7
3. The developer gap or the doctor gap	Clean the Doctor Blade.	4.4.1.8, 4-29
do not satisfy the specified value.	Developer Gap: Replace the Drum Unit Assembly.	7.2.2.1, 7-81
	Doctor Gap: Replace the Developer Unit Assembly.	7.2.4.1, 7-100
4. The developer mix needs replacement.	Replace the Developer mix.	7.2.4.29, 7-135
5. OPC Roll GND fault.	Replace the OPC Roll. Replace the Drum Unit Assembly.	7.2.2.2, 7-83 7.2.2.1, 7-81

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Phenomenon 9 Wide Streak (Covering	g the entire surface)	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Charger is stained.	Clean the Shield and Grid of the Charger Assembly.	4.4.1.1, 4-20
2. The life of the OPC was over.	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
3. Toner density is too high.	Replace the Developer mix. Replace the Toner Control Sensor.	7.2.4.29, 7-135 7.2.4.21, 7-126
4. Faulty Developer Bias voltage.	Check the output of the High Voltage Power Supply (CH) (CH3)	3.6.3, 3-22-2
	Check the high voltage parts from the High Voltage Power Supply 1 to the Developer Unit Assembly.	According to the Error Code displayed. 5.3, 5-7
5. The temperature of the Fuser Assembly has not reached the proper value.	Replace the Temperature Sensor (S812/S813). Replace the Thermistor Assembly. Replace the Heat Roll. Replace the Lamp.	4.4.2.2, 4-37 7.6.1.34, 7-417 7.3.4.6, 7-275 7.3.4.21, 7-292 7.3.4.17, 7-287

Phenomenon 10 Skew (Covering the e	entire surface)	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Paper has skewed.	Refer to the Troubleshooting for Over skew.	5.3.80, 5-180

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Phenomenon 11 Bleeding (Covering the	ne entire surface)	
	9 湯第日中明商 1 京 所先社★7 9 湯第日中明商 1 京 所先社★7 9 湯第日中明商 1 京 所先社★7 日本 叙明御客 S 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Toner density is too high.	Replace the Developer mix. Replace the Toner Control Sensor.	7.2.4.29, 7-135 7.2.4.21, 7-126
2. The surface temperature of the OPC is too high.	The Charger Assembly is stained. Clean the Shield and the Grid. Clean the Surface Voltage Sensor. Wind up the OPC Roll.	4.4.1.1, 4-20 4.4.1.11, 4-34 Refer to the Controller Maintenance Manual.
3. Developer Bias voltage is too high.	Check the output of the High Voltage Power Supply (CH).(CH3) Replace the High Voltage Power Supply 1.	3.6.3, 3-22-2         7.6.1.5, 7-383
4. The developer gap or the doctor gap do not satisfy the specified value.	Developer Gap: Replace the Drum Unit Assembly. Doctor Gap: Replace the Developer Unit Assembly.	7.2.2.1, 7-81         7.2.4.1, 7-100
5. The Opt-Window is stained.	Clean the Opt-Window.	4.4.1.12, 4-35

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Phenomenon 12 Trailing Edge Too Lig	ht (Covering the entire surface)	
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Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The OPC surface voltage is too high.	Clean the Shield and Grid of the Charger Assembly. Clean the Erase Wire Assembly or the LED Eraser. Clean the Clean the Surface Voltage Sensor. Wind up the OPC Roll. Check the output of the High Voltage Power Supply (CH).(CH1.CH2) Penlace the High Voltage Power Supply 1	4.4.1.1, 4-20 4.4.1.2, 4-21 4.4.1.10, 4-33 4.4.1.11, 4-34 Refer to the Controller Maintenance Manual. 3.6.3, 3-22-2
2 The Developer Bias Voltage is low	Check the output of the High Voltage Power	3.6.3.3-22-2
	Supply (CH).(CH3) Check the high voltage parts from the High Voltage Power Supply 1 to the Developer Unit Assembly.	According to the Error Code displayed. 5.3, 5-7
3. The life of the developer mix was over.	Replace the Developer mix.	7.2.4.29, 7-135
4. The developer gap or the doctor gap do not satisfy the specified value.	Developer Gap: Replace the Drum Unit Assembly. Doctor Gap: Replace the Developer Unit Assembly.	7.2.2.1, 7-81 7.2.4.1, 7-100
5. The Upper Magroll does not rotate.	Check the MGR Gear (Z22) and the Leak Protector (MGR). Change it if it is broken.	7.2.4.4, 7-105

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**Replace** the following. Pg.5-488

Phenomenon 15 Partial Poor Transferring or Developing (In the Vertical Direction)		
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
<ol> <li>The developer mix is incorrectly transferred.</li> <li>The OPC surface voltage is too high.</li> </ol>	Clean the Doctor Blade. The Developer mix needs replenishing: Replace the Developer mix. Foreign substances are in the Developer: Replace the Developer mix. Replace the Developer Unit Assembly. Clean the Shield and Grid of the Charger Assembly. Clean the Erase Wire Assembly or the LED Eraser	4.4.1.8, 4-29 7.2.4.29, 7-135 7.2.4.29, 7-135 7.2.4.1, 7-100 4.4.1.1, 4-20 4.4.1.2, 4-21 4.4.1.2, 4-21 4.4.1.0, 4-33
	Clean the Clean the Surface Voltage Sensor. Wind up the OPC Roll. Check the output of the High Voltage Power Supply (CH).(CH1.CH2) Replace the High Voltage Power Supply 1.	4.4.1.11, 4-34 Refer to the Controller Maintenance Manual. 3.6.3, 3-22-2 7.6.1.5, 7-383
3. Toner density is too high.	Replace the Developer mix. Replace the Toner Control Sensor.	7.2.4.29, 7-135 7.2.4.21, 7-126
4. The Developer mix needs replenishing.	Replace the Developer mix.	7.2.4.29, 7-135
5. Paper fault.	Change the paper. Use paper which compiles with the Consumable Specification.	

Phenomenon 16. - White Streak (In the Vertical Direction, stains around the Image)



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#### **Replace** the following.

Pg.5-489

Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Foreign substances attach between the Developer Unit and the OPC.	Clean around the Developer Unit.	4.4.1.7, 4-26

#### Phenomenon 17. - Black Streak (In the Vertical Direction)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Charger Assembly is stained.	Clean the Shield and Grid of the Charger Assembly.	4.4.1.1, 4-20
2. The OPC surface voltage is too low.	Clean the Shield and Grid of the Charger Assembly.	4.4.1.1, 4-20
	Clean the Surface Voltage Sensor.	4.4.1.11, 4-34
	Check the output of the High Voltage Power	3.6.3, 3-22-2
	Supply (CH).(CH1.CH2)	
	Replace the High Voltage Power Supply 1.	7.6.1.5, 7-383
3. The OPC Roll is damaged.	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
4. Foreign substances attach around the Drum Unit.	Clean around the Drum Unit, and clean the Shield and Grid of the Charger Assembly.	4.4.1.1, 4-20
	Clean around the Developer Unit.	4.4.1.7, 4-26

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Phenomenon 23 Black Spot		
	<b>*</b>	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface of the drum is contaminated.	Clean the OPC Roll.	
2. The OPC Drum Sheet is damaged.	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
<ol> <li>Something occurred after winding up the sheet. (OPC Sheet fault.)</li> </ol>	Wind up the OPC Roll.	Refer to the Controller Maintenance Manual.
<ol> <li>Foreign substances attach between the OPC sheet and the Drum Unit Assembly surface.</li> </ol>	Clean the OPC Roll backside and the Drum Unit Assembly surface. Wind up the OPC Roll.	7.2.2.2, 7-83 Refer to the Controller Maintenance Manual.
5. Black spots occur. The OPC surface voltage is too high. The Charger is partially stained.	Clean the Shield and Grid of the Charger Assembly. Clean or Replace the Erase Wire Assembly or the LED Eraser. Clean the Surface Voltage Sensor. Check the output of the High Voltage Power Supply (CH).(CH1.CH2) Replace the High Voltage Power Supply 1.	4.4.1.1, 4-20 4.4.1.2, 4-21 4.4.1.10, 4-33 4.4.1.11, 4-34 3.6.3, 3-22-2 7.6.1.5, 7-383

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**Replace** the following. Pg.5-501

Phenomenon 34 White Spot (and carr	ier dispersion)	
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface voltage is too high.	Clean the Shield and Grid of the Charger Unit Assembly. Clean the Erase Wire Assembly or the LED Eraser. Clean the Surface Voltage Sensor. Wind up the OPC Roll. Check the output of the High Voltage Power Supply (CH).(CH1.CH2.CH3) Replace the High Voltage Power Supply 1.	4.4.1.1, 4-20 4.4.1.2, 4-21 4.4.1.10, 4-33 4.4.1.11, 4-34 Refer to the Controller Maintenance Manual. 3.6.3, 3-23 7.6.1.5, 7-394
2. The OPC Roll loosening.	Check the cause of OPC Roll looseness. Wind up the OPC Roll. Replace the Drum Unit Assembly.	Refer to the Controller Maintenance Manual. 7.2.2.1, 7-82
3. Gap between the Drum Cap and the	Check the Drum Cap Knob Set.	7.2.2.1, 7-82
4. Toner density is too low.	Replace the Developer mix.	7.2.4.29, 7-136
	Replace the Toner Control Sensor.	7.2.4.21, 7-127
5. Overflow of the Developer mix. *1	Adjustment of the magnetic pole angle. Replace the Developer Unit Assembly.	5.3.123, 5-319 7.2.4.1, 7-101
6. The carrier remains in the form running part.	After the above Nos. 1 to 4 are treated, the remaining carrier is cleaned. (Regist Roller exit, the neighborhood of the Transfer Unit, Pressure Roller and Feed Roller, etc.)	4.4.2.3, 4-38, etc.,



OVERFLOW OF THE DEVELOPER MIX

Figure 5-279-2. Overflow of the Developer mix

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**Replace** the following. Pg.5-504

#### 5.5. Troubles in Other Parts(Abnormal Noise, etc.,)

If any trouble other than "Troubles" on page 5-3 to "Troubles in Print Quality" on page 5-471 such as abnormal noise, rough movement of the operable parts and the like occurs, replace the abnormal part.

#### 5.6. Countermeasures for Paper Jams

#### 5.6.1. Corrective Actions for Paper Jams

Check the jammed paper. Check specially if the leading edge of the paper is damaged or not. If damaged, check if there is any fragment of paper or burr (small projection) in the paper feeding system at the corresponding portion of the damage. There are following two kinds of detail error codes of the printer;

- 1. The leading edge of paper does not reach the sensor.
- 2. The trailing edge of paper does not pass through the sensor.

Check the paper jamming condition according to the above information. If the paper jams again, check the paper jamming condition. Record the space between papers. If the Regist Cover is opened when paper jam occurs, the jammed paper automatically ejects from the printer. When checking the status of the remaining paper, open the front cover. This operation shuts down the +24V line and disables automatic paper ejection. Then open the other covers.

- (1) Paper jammed
  - (a) Check the stop position of the papers.
  - (b) Check if the jammed paper is damaged or not.
- (2) Paper jam in the Feeding part.
  - (a) Is the Pick Belt deformed or worn out?
  - (b) Is there too foreign substances (like oil or much paper dust) adhered to the Pick Belt?
  - (c) Does the table tilt? Check the tilt when the table is rising.
  - (d) Is the gap between the paper and the Size Guide correct?
  - (e) Check when the paper jam occurs (Check the first paper, the middle paper, or last paper), then check the paper is damaged or not.
  - (f) Is there any burr, folding or curl?
- (3) Paper jam in the Regist Unit.
  - (a) Check the space between papers.
  - (b) Check if there is any burr, folding or curl. If there is, check where it occurs.
  - (c) Check if the Regist Cover is closed, fix condition in the hinge part is correct, or the sensor house (the Inner Paper Guide) operates smoothly.
- (4) Skew Jam.
  - (a) Is the paper skewed? Check the direction. Open the Regist Cover. Draw the line centered on the Paper Guide at Regist part entrance in the paper by using pencil, etc., Check the tilt of the paper.
  - (b) In which does the paper jam occur in simplex printing or duplex printing?
  - (c) Does the paper jam occur in the specific hopper?
  - (d) Does the paper jam occur in the specific paper?

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<b>Replace</b> the follo Pg.5-505-1	wing.			
	(e)	Check if there is any bur If there is, check where i	r, folding or curl. t occurs.	
	(f)	Has the paper skew occu If the Side Cover is remo be checked.	urred at the Feeding Path part oved, the processing of the Fee	already? eding Path part can
	(g)	Has the big paper skew w Check the paper skew w parts involved in the pap accordance with the trou [How to check paper skew]	occurred on the paper path alr hile printing by the following w er skew. Correct the cause of bleshooting (5.3.80) if the cause w]	eady? ay and confirm the paper skew in se will be confirmed.
	Note:	Take care not to touch the rot	ating object while checking.	
	1. Ope	en the Front Cover and ins	ert the Cheater into the interlo	ck switch.
	2. Imp	lement the Test Print.		
	3. Put oper Poir that	a pen, for which a aqueou nings of the paper guide w nt] in order to mark the trac pressing a pen strongly a	is felt-tip pen is best, on the pa where are shown in the figure be ce of the paper sending while p gainst the paper make the pap	per path through the elow as [Skew Check printing. Pay attention per jam at this time.
	4. Che pap If t edg rect If t send In th	eck the trace marked on th er side and whether the tra- he slope of the trace with e of A4), there may be no the paper skew if the skew he slope is more than 3mr ding system. his case, please check below	e paper how much the slope o ace is straight or not. the paper side is within 3mm p problem. Because the regist ro w is less than 3mm. m, there might be some proble ow.	f the trace with the per 210 mm (the side oller can usually cor- m on the paper
	(a)	If the trace is bent, there path of the pen.	may be the cause of the skew	at the downstream
	(b)	If the trace is straight, the and there may be the ca again at the up stream w	ere is not the cause at the dow use at the upstream path of pe rith the same way.	nstream path of pen en. Please check



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**Replace** the following. Pg.5-505-2

> [Skew Check Point] (1) Feeder Unit: Check the paper skew at the openings of paper guide shown A, B, C, D, E, F, G and H.



Figure 5-279-3. Check for skew - Feeder Unit

(2) Transit Path Unit: Check the paper skew at the openings of paper guide shown A, B and C.





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	(5) D	rum Wrap jam.			
	(	Check if the paper is wound around the Drum or not. If not, the Wrap Sensor may be contaminated, clean the Wrap Sensor. Check that the Transfer Belt is stained or not. If so, Clean the Transfer Belt.			
	(				
	(	<li>c) Check that the OPC sheet has If so, turn the drum counterclo</li>	heck that the OPC sheet has looseness. f so, turn the drum counterclockwise to remove the looseness.		
	(	d) Check that print density is not	Check that print density is not too light.		
	(	<ul> <li>Check that the connector of th connected.</li> </ul>	e High Voltage Power Su	pply is rightly	
	(	<li>f) Check that the Corotron (W) A the wire is stained or not.</li>	Assembly is assembled co	rrectly, and whether	
	(	<li>g) Before the Transfer Belt conta operation, check whether it is</li>	acts with the drum when st rotating or not.	tarting the printing	
	(	<ul> <li>h) Check if there is burry or curls Hopper.</li> <li>If there is, fix the paper inside paper in the Hopper.</li> </ul>	at the paper edge for pap out without changing proc	per inside the cessing direction of	
	(i	i) Check the surrounding enviror	Check the surrounding environment / form condition is correct.		
	(6) P	per jam in the Fuser Assembly.			
<ul> <li>(a) Are there any scratches on the toner attach to the surface of</li> </ul>			e Heat Roll and the Backu the Heat Roll and the Bac	ıp Roll? Does the kup Roll?	
	(b) Is the jammed paper still remaining in the Fuser Assembly?			bly?	
	(	<li>c) Is the Fuser Assembly set at t the Fuser Assembly set at the</li>	he correct position? Is the correct position?	lock lever of	
		<li>Is there too much toner or pap Guide of the Fuser Assembly.</li>	er dust on the Nail, the Se	nsor Arm, the Paper	
(7		aper jam in the Inverter Unit.			
	(	<ul> <li>Check if paper is largely curle inside out.</li> </ul>	ed or not. If it does, fix the	paper in the hopper	
	(	b) Check if there is any burr, fold	ing or curl. If there is, che	ck where it occurs.	
	(	<li>c) Is there any contamination or the reverse divergence part.</li>	deformation about the Inv	erter Valve Piece of	
	(	d) Check if the Feed Roller PHS (Refer to item 5.6.4 on page 5)	(L) Assembly has swelled -507) No. (9). Replace it it	<b>l.</b> f it has swelled.	
	(8) P	aper jam in the Return path.			
	(	<ul> <li>a) Check whether the Path Gate</li> </ul>	operates smoothly or not		
	(	<li>b) Check if the edge of the gate Gate operates.</li>	is hidden by the Paper Gu	ide when the Path	
	(	<li>c) Check the space between paper which all check that the paper which all check that the</li>	pers.	ists in the Deturn	

- (c) Check the space between papers. Check that the paper which should go to the Stacker exists in the Return Path. Check that the paper which should go to the Return Path exists in the Stacker.
- (d) Check that the Paper Guide to Return Path is closed correctly.
- (9) Paper jam in the path after the Inverter Unit.
  - (a) Check if paper is largely curled or not. If it does, fix the paper in the hopper inside out.

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- (b) Check if there is any nick, burr, folded paper. If there is, check where it occurs.
- (c) Is there any contamination or deformation about the Inverter Valve Piece of the reverse divergence part.
- (10)Paper jam in the Stacker Unit.
  - (a) Check whether the Path Gate operates smoothly or not.
  - (b) Check if the edge of the gate is hidden by the Paper Guide when the Path Gate operates.
  - (c) Check that the Paper Guide in the Stacker Unit is closed correctly.
- (11) Paper jam in the Transit Pass Unit Type156.
  - (a) Check if there is any burr, folding or curl. If there is, check where it occurs.
  - (b) Has the paper skew occurred at the Feeding Path parts already? Check the Feeding Path.
  - (c) Check the fixing condition such as a tilt of the unit.
  - (d) Check the height of the Stacker and Transit Pass Unit Type156 (Pass Unit).
  - (e) Check the height and the alignment of the Transit Pass Unit Type156 and Post Device.

## 5.6.2. Countermeasure for Faulty Stack

- (1) Check whether the stacked paper has static electricity or not.
  - (a) You can check by removing paper from the Container and turn the paper inside out. If the paper has much static electricity, check whether the brush for static
    - If the paper has much static electricity, check whether the brush for static electricity is worn out or not.
- (2) Check the curl and deformation volume, and the direction.
  - (a) If there is too much, fix the paper in the hopper inside out. Or change the paper to new one.

## 5.6.3. Corrective Actions for Dog-eared Paper

- Check if there is damage like any nick, burr, folded near the position where Dogeared paper occurs.
  - (a) If so, check if there is any fragment of paper or burr in the Paper Feeding System at the corresponding portion of the damage.
- (2) Check which side of the paper is folded, back side or front side, before or after transporting, before or after fusing.
  - (a) If the paper edge is folded before back side transferring, check if the paper in the Feeding Hopper is folded or curled. Also, check the gap between the paper and the Size Guide is too narrow or too wide.
  - (b) If the paper edge is folded before front side transferring, check if there is any fragment of paper or burr.
  - (c) If the paper edge is folded after transferring and before fusing, the cause may be the same as the Drum Wrap jam. So, perform the remedy for Drum Wrap jam.
  - (d) If the paper edge is folded after fusing, check paper curl volume. If paper is largely curled, fix the paper in the hopper inside out.
- (3) Check the paper transporting position in the vertical direction

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Replace the following.

Pg.5-507

(a) The paper transporting position standard is 36.6mm from the inside wall of frame. If there is a lot of gap, check the fixing condition such a tilt of the unit.

## 5.6.4. Corrective Action for Wrinkled Paper

- (1) Check if the paper edge before fusing is folded or nicked.
  - (a) If the paper edged before fusing is folded or nicked, perform the remedy according to the procedure of Corrective Actions for Dog- eared Paper. (Refer to item 5.6.3 on page 5-506)
- (2) Check if the skew of paper is large.
  - (a) If the skew of paper is large, perform the remedy according to the procedure of Skew Jam. (Refer to item 5.6.1 on page 5-504) No. (4).
- (3) Check which side of paper of front side or back side is wrinkled.
  - (a) If the wrinkle is generated convex for front side of paper, perform the remedy according to the procedure of (9) of this chapter. Because the wrinkle generated by the Fuser Assembly is generated in convex on the back side of paper.
- (4) Check if the paper has absorbed moisture and is transformed.
  - (a) If the paper has absorbed moisture and is transformed, unpack the new paper which is packed. And exchange it for the new paper.
- (5) Check if the Fuser Assembly is set at the correct position and the TH Handle (H) is set at the correct position.
  - (a) If the Fuser Assembly isn't set at the correct position, push the Fuser Assembly until the latch for the Fuser Unit is caught.
  - (b) If the TH Handle isn't set at the correct position, rotate left the TH handle (H) until the horizontal position.
- (6) Check if the Heat Roll, Backup Roll or Paper Guide at the entrance of the Fuser Unit is contaminated.
  - (a) Check if there are foreign materials or contamination on the Heat Roll, Backup Roll or Paper Guide at the entrance of the Fuser Unit.
  - (b) If there are the contamination or the foreign materials, clean it with gauze etc.
- (7) Check by what kind of paper the wrinkle is generated.
  - (a) If the wrinkle is generated in the specific paper, the cause of wrinkle is presumed to be in the form. Unpack the new paper which is packed, and exchange it for the new paper. If the wrinkle is still generated, exchange it for the paper of the other brand.
  - (b) When the wrinkle is generated in the long paper.
    - If the setting of Heat Roll temperature is higher, change it to normal or lower. If the setting of Heat Roll temperature is normal, change it to lower.
    - Peat Roll, Backup Roll or Fuser Assembly might be broken, exchange the Heat Roll Assembly, the Backup Roll or the Fuser Assembly. The exchange of the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-268)

The exchange of the Backup Roll. (Refer to item 7.3.4.3 on page 7-272) The exchange of the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-267)

(8) If the paper is wrinkled in spite of the action above, adjust the Nip Wide of Fuser Assembly.



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## **Replace** the following.

Pg.6-20

Show each indication and relation of the output in Table 6-13 on page 6-20 on Sensor test 2. Each value in the list is rough standard. Therefore, it is not abnormal even if output value is different..

Table 6-13. Rough standard list of sensor test 2

Code	Sensor Name	Condition and output value	Remarks
01	Double feed sensor	No paper : E0 - FF	The output value changes by
		55kg paper :70 - 8F	thickness of paper.
02	Toner control sensor	Normal : (20 - 70)	Indication value changes by a
		Target of toner / carrier ratio is 4.7%.	turn of Magroll. Toner control
			uses average value.
03	Drum wrap sensor 1	55kg paper :A0 - B8	Display a low value at the
		OPC : 28 - 48	Drum cap.
04	Drum wrap sensor 2	55kg paper : A0 - B8	Display a low value at the
		OPC : 28 - 48	Drum cap.
05	Drum Surface voltage sensor	500V :73 600V :8B	Usually shows value of about
		700V :A2 800V :B9	550V - 600V.
00		900V :DU	Emery value is less than 2D
00		Normal: 70 - FF	Effor value is less than 2D.
07/08	HR surface temperature 1/	- Thermopile T and Z $20^{\circ}$ C $\div 0122$ $= 50^{\circ}$ C $\div 0144$	contract with the heat roll
	HR sunace temperature 2	$20^{\circ}$ C $10122^{\circ}$ 50 C $10144^{\circ}$	besides initialize
		100 C:018F 150 C:0206	Therefore, the output value of
		$170^{\circ}$ C : 0255 $180^{\circ}$ C : 027B	Thermistor shows low value
		190° C : 02A2 200° C : 02CC	
		210°C:02F2	
		- Thermistor 1 and 2	
		20° C : 0004 50° C : 0019	
		100° C : 0074 150° C : 0119	
		170°C:0150 180°C:0167	
		190°C:0177 200°C:018A	
		210°C:0197	
09	Temperature sensor	15°C:0246 25°C:01DF	Detect upper temperature of
		35° C : 017C 45° C : 0126	the developer unit.
0A	Humidity sensor	25% : 0117 50% : 0199	Detect upper temperature of
		75% : 01F6	the developer unit.
0B	0B	00 (when Blower is rotating),	Only two output.
		80 (when Blower stops)	
0C/12	Built-in Hopper Lower Height	The position where the sensor detects	(*1)Display the error when the
	Sensor	paper.(*1)	paper does not set in the
0D/13	Built-in Hopper Lower Height	: 0177 - 026F	Hopper.
	Sensor	The position where a table is down.	
0E/14	AHP1 Lower Height Sensor	: 0068 - 007C	
0F/15	AHP1 Upper Height Sensor	4	
10/16	AHP2 Lower Height Sensor	4	
11/17	AHP2 Upper Height Sensor		



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**Add** the following procedure after chapter 7.2.1.55 Pg.7-80

#### 7.2.1.56. Removal of the Fuser Drive Assembly

CAUTION: Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### 

#### [Disassembling Procedures]

- 1. Remove the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-267)
- 2. Open the Air System part. (Refer to item 3.3.3 on page 3-17)
- 3. Remove the Rear Cover (L) Assembly, and the Rear Cover (R) Assembly. (Refer to item 3.3.2 on page 3-9)
- 4. Open the PK Box Assembly. (Refer to item 7.6.1.2 on page 7-379)
- 5. Remove the Fuser Motor Assembly. (Refer to item 7.2.1.11 on page 7-22)
- 6. Remove the Fuser Drive Gear 1. (Refer to item 7.2.1.34 on page 7-50)
- 7. Remove the Circular-clip from the Fuser Drive Base Sub Assembly, to remove the Fuser Drive Assembly.



Figure 7-86-2. Removal of the Fuser Drive Assembly

#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.



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**Replace** the following. Pg.7-255

#### 7.3.3.27. Removal of the Regist Idler Roller Assembly

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jeweler's Screwdriver Set, Radio Nipper, Alvania Grease (No. 2).

[Disassembling Procedures]

- 1. Remove the Carbon Electrode for Regist Idler Roller Assembly. (Refer to item 7.3.3.31 on page 7-259)
- 2. Remove the Spring Holder for Regist Idler Roller Assembly. (Refer to item 7.3.3.32 on page 7-260) [Disassembling Procedures Items 1 to 3, and 5]

Note: Not to remove the two screws maintaining the alignment of the PRESS ROLLER ADJUSTER.

3. Remove the Regist Idler Roller Assembly.



Figure 7-293. Removal of the Regist Idler Roller Assembly

 Remove the two Sleeve Bearings and Rub Gear from the Regist Idler Roller Assembly.



Figure 7-294. Removal of the Regist Idler Roller Assembly

#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order. Apply the Alvania Grease (No. 2) to the Spring Holder. (Refer to item 7.3.3.32 on page 7-260)



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Replace the following.

Pg.7-268

### 7.3.4.2. Removal of the Heat Roll Assembly

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

[Disassembling Procedures]

- 1. Pull out the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures - Items 1 to 2]
- 2. Unscrew the three  $\oplus$  screw to remove the Front Cover (T).
- 3. Turn the TH Handle (H) Assembly in the direction of the arrow.



Figure 7-310. Removal of the Heat Roll Assembly

4. Unscrew the three ⊕ screw to remove the Rear Cover (T).



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**Replace** the following. Pg.7-284

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## 7.3.4.14. Removal of the Eraser(for Heat Roll)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

[Disassembling Procedures]

- 1. Pull out the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures - Items 1 to 2]
- 2. Open the Paper Guide In Assembly.
- 3. Unscrew the two ⊕ screws A and one ⊕ screw B to remove the Eraser A.



Figure 7-335. Removal of the Eraser(for Heat Roll)

- 4. Open the Top Cover Assembly.
- 5. Remove the Front Cover (T). (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 1 to 2]
- 6. Unscrew the one  $\oplus$  screw  ${\bf C}$  and remove the E Brush Holder Assembly.
- 7. Unscrew the two  $\oplus$  screws D and the one  $\oplus$  screw E to remove the Eraser B.



Figure 7-336. Removal of the Eraser(for Heat Roll)

#### [Assembling Procedures]

- 1. Perform the disassembling procedures in the reverse order.
- Assemble the Eraser pushing in the direction of the Heat Roll. When the space between the Eraser and the Heat Roll is 0.6mm or less, adjust the space to 0.6 to 1.0mm with the thickness gauge and assemble.

KICOH	RI	CO	Η
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**Replace** the following.

Pg.7-285

## 7.3.4.15. Removal of the Eraser(for Backup Roll)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

- 1. Pull out the Fuser Assembly. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures - Items 1 to 2]
- 2. Loosen the one  $\oplus$  screw A to remove the Eraser.
- 3. Unscrew the two ⊕ screws B to remove the Eraser.



Figure 7-337. Removal of the Eraser(for Backup Roll)

#### [Assembling Procedures]

- 1. Perform the disassembling procedures in the reverse order.
- Assemble the Eraser pushing in the direction of the Backup Roll. When the space between the Eraser and the Backup Roll is 0.6mm or less, adjust the space to 0.6 to 1.0mm with the thickness gauge and assemble.

RICOH	Technical Bulletin	PAGE: 73/93
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Add the following p Pg.7-289	procedure after chapter 7.3.4.18	
5	7.3.4.18. Removal of the Thermostat Asser	mbly
	<ul> <li>CAUTION:</li> <li>Be sure to turn OFF the MAIN AC POWER prior to per</li> <li>The Fuser Assembly is very hot. Turn the printer off ar cool for 1 hour before attempting to remove it.</li> <li>The weight of the Fuser Assembly is 55lb.</li> </ul>	forming the maintenance. nd allow the Fuser Assembly to
	Note: Do not open the vinyl Package of the new Therm Assembling Procedure 6.	nostat Assembly just before
	Necessary Requirement : The Fuser Unit Rev. "J" is pai	nted black.
	Applicable jigs and tools: ⊕ Screwdriver, - Screwd Bolt, Gauze, Black Felt-t	river, Wrench for Hex Socke ip Pen.
	[Disassembling Procedures]	
	In case of more than one worker, go to Disassembling F	Procedure 3.
	<ol> <li>Remove the Heat Roll Assembly. (Refer to item 7.3 [Disassembling Procedures - Items 1 to 10]</li> <li>Remove the Backup Roll and the Web Cassette As on page 7-272) [Disassembling Procedures - Item 3. Remove the Fuser Assembly from the Printer. (Ref 7-267) [Disassembling Procedures - Items 5 to 6</li> </ol>	3.4.2 on page 7-268) seembly. (Refer to item 7.3.4.3 ms 2 to 3] fer to item 7.3.4.1 on page 6]
	4. Onscrew the one to screw.	
	(ONE SCREW) M3 x 8	

Figure 7-342-2. Removal of the Thermostat Assembly



5. Remove the E Brush Holder Assembly.



Figure 7-342-3. Removal of the Thermostat Assembly

- Remove the three Thermostat Assemblies according to the following.
   (1) Unscrew the six hex socket bolts and remove the washers.
  - (2) Pull out the six cables from the terminals.
  - (3) Remove the three Thermostat Assemblies from the Fuser Assembly.







Figure 7-342-5. Removal of the Thermostat Assembly

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 Unscrew the two ⊕ screws and remove the two cable clamps. Disconnect the connector and remove the cables.





#### [Assembling Procedures]



Figure 7-342-7. Removal of the Thermostat Assembly

In case of more than one worker, go to Assembling Procedure 4.

- Assemble the Backup Roll into the Fuser Assembly. Do not assemble the Web Cassette Assembly to the Fuser Assembly. (Refer to item 7.3.4.3 on page 7-272)
  - [Disassembling Procedures Item 3]
- 3. Assemble the Heat Roll Assembly into the Fuser Assembly. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures Items 8 to 10]



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Figure 7-342-8. Removal of the Thermostat Assembly

Put a paper on the Heat Roll, and prevent from scratch the surface of the Heat Roll.



Figure 7-342-9. Removal of the Thermostat Assembly

 Open the vinyl package of the new Thermostat Assembly. Take out the new Thermostat Assembly and the Relay Cable. Peel off the paper tape.



Figure 7-342-10. Removal of the Thermostat Assembly



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- CAUTION:
- Do not transform the following parts.
- Do not adhesion the dust.



Figure 7-342-11. Removal of the Thermostat Assembly

Put the cables (two connectors side) of the Thermostat Assembly through the hole of front Fuser Frame. (Put through the connector B after putting through the connector A.).



Figure 7-342-12. Removal of the Thermostat Assembly

Put the cables (one connector side) of the Thermostat Assembly through the hole of rear Fuser Frame.



Figure 7-342-13. Removal of the Thermostat Assembly

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 Put the new three Thermostat Assemblies into the Fuser Assembly. (Refer to Front View 1, 2, and 3 sequentially for the procedure.).



Figure 7-342-14. Removal of the Thermostat Assembly



10. To move freely in the Thermostat Assembly, tighten the six hex socket bolts and the washers loosely.



Figure 7-342-15. Removal of the Thermostat Assembly

a Heat Dell .... . ....

(ONE SCREW) M4 x 12

TH HANDLE (H) ASSEMBLY

B

Figure 7-342-16. Removal of the Thermostat Assembly



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- 15. Confirm (1) The six hex socket bolts are loosely to move freely in the three Thermostat Assemblies.
  (2) The three Thermostat Assemblies are parallel to the Heat Roll.
  (3) The three Thermostat Assemblies are bumped into the Heat Roll.
  (4) The Europe is closed
  - (4) The Fuser Frame is closed.
  - (5) The TH Handle (H) Assembly is turned in the direction of the arrow B.



Figure 7-342-17. Removal of the Thermostat Assembly

16. Tighten all of the six hex socket bolts very strongly.



Figure 7-342-18. Removal of the Thermostat Assembly



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 Unscrew and scrap the three - screws. Remove and scrap the three Thermostat Spacers.



Figure 7-342-19. Removal of the Thermostat Assembly

 Joint the one connector, and tighten the two ⊕ screws and the two cable clamps, and fasten the cables. (Rear side).



Figure 7-342-20. Removal of the Thermostat Assembly

 Unscrew the one ⊕ screw to slide the Lock Shaft Assembly in the direction of the arrow D.



Figure 7-342-21. Removal of the Thermostat Assembly

<b>RICOH</b>
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 Open the Fuser Frame, and assemble the one screw and the E Brush Holder Assembly. (Refer to the Disassembling Procedures 4 to 5).

In case of more than one worker, go to Disassembling Procedure 24.

- 22. Remove the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 8 to 10]
- 23. Remove the Backup Roll. (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedures - Item 3]
- 24. Assemble the Fuser Assembly into the Printer. (Refer to item 7.3.4.1 on page 7-267) [Disassembling Procedures Items 5 to 6]

In case of more than one worker, go to Disassembling Procedure 27.

- 25. Assemble the Backup Roll and the Web Cassette Assembly. (Refer to item 7.3.4.3 on page 7-272) [Disassembling Procedures Items 2 to 3]
- 26. Assemble the Heat Roll Assembly. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 7 to 10]
- 27. Close the Fuser Frame. (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Item 8]

Note: Do not nip the Cables with the Fuser Frame.

- Push the Lock Shaft Assembly in the direction of the arrow A, and tighten the ⊕ screw. (Refer to the Assembling Procedure 13).
- Turn the TH Handle (H) Assembly in the direction of the arrow B. (Refer to the Assembling Procedure 14).
- Joint the three connectors, and assemble the Relay Cable bundled in the new Thermostat Assembly Package. (Front side).



Figure 7-342-22. Removal of the Thermostat Assembly

- 31. Assemble the three ⊕ screws and the Front Cover (T). Assemble the three ⊕ screws and the Rear Cover (T). (Refer to item 7.3.4.2 on page 7-268) [Disassembling Procedures - Items 2 and 4]
- 32. Paint Black the Fuser Unit Rev. "W" with the Black Felt-tip Pen.

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Replace the following.

Pg.7-301

### 7.4.1.7. Removal of the Smoother

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### [Disassembling Procedures]

- 1. Remove the Small Hopper Assembly. (Refer to item 7.4.1.1 on page 7-295)
- 2. Remove the Table Drive Assembly (2). (Refer to item 7.4.1.2 on page 7-296)
- 3. Unscrew the two ⊕ screws A and two ⊕ screws B to remove the Wire Hook.
- 4. Remove the two Retaining Ring to remove the two Guide Roller.
- 5. Unscrew the one ⊕ screw C to remove the Indicate Arm (S).



Figure 7-357. Removal of the Smoother

 Remove the Shutter (AP) and four TS Springs, and then lift and remove the Table(AP) Assembly from the Small Hopper Assembly.



Perform the disassembling procedures in the reverse order.

Note: Put the Slide Base (H) Assembly in the hole of the Shutter Plate (H) and assemble the Table (AP) Assembly.

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**Replace** the following. Pg.7-326

## 7.4.2.7. Removal of the Smoother

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

## [Disassembling Procedures]

- 1. Remove the Large Hopper Assembly. (Refer to item 7.4.2.1 on page 7-320)
- 2. Remove the Table Drive Assembly (1). (Refer to item 7.4.2.2 on page 7-321)
- 3. Unscrew the two  $\oplus$  screws  ${\bm A}$  and two  $\oplus$  screws  ${\bm B}$  to remove the Wire Hook.
- 4. Remove the two Retaining Ring to remove the two Guide Roller.



Figure 7-388. Removal of the Smoother

 Remove the Shutter (AP) and two TS Springs, and then lift and remove the Table(AP) Assembly from the Large Hopper Assembly.





### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Put the Slide Base (H) Assembly in the hole of the Shutter Plate (H) and assemble the Table (AP) Assembly.

Model: EMP156

Date: 28-Dec-07

**Replace** the following.

Pg.7-443

## 7.6.1.54. Removal of the Pick Belt (Upper Hopper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

## Applicable jigs and tools: $\oplus$ Screwdriver.

[Disassembling Procedures]

- 1. Remove the Small Hopper Assembly. (Refer to item 7.4.1.1 on page 7-295)
- 2. Remove the Swing Unit(2). (Refer to item 7.6.1.25 on page 7-405)
- Remove the Pick Unit Hanger(2) Assembly. (Refer to item 7.6.1.53 on page 7-442)
- 4. Unscrew the two  $\oplus$  screws **A** to remove the Pick Unit Hanger(2) Assembly.
- 5. Disconnect the connector P/J585 and remove the two  $\oplus$  screws  ${\bf B}$  to remove the Solenoid A.
- Unscrew the two ⊕ screws C and remove the washer, the Ball Bearing D, and Ball Bearing E.
- 7. Remove the one  $\oplus$  screw  ${\bf F}$  to remove the Ring Keeper.
- 8. Unscrew the two  $\oplus$  screws  ${\bf G}$  and remove the washer, and the Ball Bearing D.
- 9. Remove MP Drive Pulley and the key.
- Remove the Pick Pulley B(item No.1), Pick Pulley B(item No.2) to remove the Pick Belt.



Figure 7-525. Removal of the Pick Belt (Upper Hopper)

## [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Not	1. The usage counter has to be reset after replacing the Pick Belt (Upper Hopper).
	(Refer to item 4.2.4 on page 4-13) 2. Adjust the white mark of the Pick Belt to Solenoid A side and assemble it.

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Date: 28-Dec-07

No.: RG155029

Replace the following.

Pg.7-443

## 7.6.1.57. Removal of the Pick Belt (Lower Hopper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### 

#### [Disassembling Procedures]

- 1. Remove the Large Hopper Assembly. (Refer to item 7.4.2.1 on page 7-320)
- 2. Remove the Swing Unit(1). (Refer to item 7.6.1.25 on page 7-405)
- Remove the Pick Unit Hanger(1) Assembly. (Refer to item 7.6.1.55 on page 7-444)
- 4. Unscrew the two ⊕ screws A to remove the Pick Unit Hanger(1) Assembly.
- 5. Disconnect the connector P/J585 and remove the two  $\oplus$  screws B to remove the Solenoid A.
- Unscrew the two ⊕ screws C and remove the washer, the Ball Bearing D, and Ball Bearing E.
- 7. Remove the one ⊕ screw F to remove the Ring Keeper.
- 8. Unscrew the two  $\oplus$  screws G and remove the washer, and the Ball Bearing D.
- 9. Remove MP Drive Pulley and the key.
- Remove the Pick Pulley B(item No.1), Pick Pulley B(item No.2) to remove the Pick Belt.



#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

 Note: 1. The usage counter has to be reset after replacing the Pick Belt (Lower Hopper). (Refer to item 4.2.4 on page 4-13)
 2. Adjust the white mark of the Pick Belt to Solenoid A side and assemble it.

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Model: EMP156

Date: 28-Dec-07

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Replace the following.

Pg.7-604

## 7.8.2.11. Removal of the Pick Belt (Upper Hopper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### 

#### [Disassembling Procedures]

- 1. Remove the Pick Unit Hanger(1) Assembly. (Refer to item 7.8.2.9 on page 7-602)
- Remove the two ⊕ screws B and remove the washer, the Ball Bearing D, and Ball Bearing E.
- Remove the one ⊕ screw C to remove the Ring Keeper.
- 5. Remove the two  $\oplus$  screws **D** and remove the washer, and the Ball Bearing D.
- 6. Remove MP Drive Pulley and the key.
- Remove the Pick Pulley B(item No.1), Pick Pulley (item No.2) to remove the Pick Belt.



#### Figure 7-699. Removal of the Pick Belt (Upper Hopper)

#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.



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Model: EMP156

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No.: RG155029

## Replace the following.

Pg.7-607

## 7.8.2.14. Removal of the Pick Belt (Lower Hopper)

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

#### 

#### [Disassembling Procedures]

- Remove the Pick Unit Hanger(1) Assembly. (Refer to item 7.8.2.12 on page 7-605)
- 2. Remove the two ⊕ screws A to remove the Pick Unit Hanger(1) Assembly.
- Unscrew the two ⊕ screws B and remove the washer, the Ball Bearing D, and Ball Bearing E.
- 4. Remove the one ⊕ screw C to remove the Ring Keeper.
- 5. Unscrew the two  $\oplus$  screws D and remove the washer, and the Ball Bearing D.
- 6. Remove MP Drive Pulley and the key.
- Remove the Pick Pulley B(item No.1), Pick Pulley (item No.2) to remove the Pick Belt.



Figure 7-704. Removal of the Pick Belt (Lower Hopper)

#### [Assembling Procedures]

Perform the disassembling procedures in the reverse order.



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No.: RG155029

Replace the following.

Pg.7-630

## 7.8.3.7. Removal of the Smoother

CAUTION:

Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools:  $\oplus$  Screwdriver, - Precision Screwdriver.

### [Disassembling Procedures]

- 1. Remove the Feeder Hopper Assembly. (Refer to item 7.8.3.1 on page 7-623)
- 2. Remove the Table Drive Assembly. (Refer to item 7.8.3.2 on page 7-625)
- 3. Unscrew the two  $\oplus$  screws  ${\bm A}$  and two  $\oplus$  screws  ${\bm B}$  to remove the Wire Hook.
- 4. Remove the two Retaining Ring to remove the two Guide Roller.



Figure 7-729. Removal of the Smoother

 Remove the Shutter (AP) and four TS Springs, and then lift and remove the Table(AP) Assembly from the Feeder Hopper Assembly.





## [Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Put the Slide Base (H) Assembly in the hole of the Shutter Plate (H) and assemble the Table (AP) Assembly.



Date: 28-Dec-07

No.: RG155029

**Replace** the following. Pg.7-630

## 7.10.2. Setting of the Temperature and Humidity Control

Applicable jigs and tools: None.

#### [Setting Procedures]

This function is a function to invalidate the temperature humidity control when judged that the temperature humidity sensor broke.

The switch procedure whether the temperature and humidity are effectively controlled or invalidate it is shown.

\* Return the temperature humidity control effectively after exchanging the temperature humidity sensors.



Figure 7-793. Setting of the Temperature and Humidity Control





Date: 28-Dec-07

No.: RG155029

**Replace** the following. Pg.7-722



Figure 7-829. Adjustment of the amount of reversal of Regist Roller

#### [Paper Skew from the hopper]

Write in the data YY+40 at the address 0408 and the data 28 at the address 0502. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,8	at Display (a)	
■ key	at Display (a)	0408=YY xx xx xx
YY+40 (HEX)	at Display (b)	0408=YY+40 xx xx xx
■ key	at Display (b)	
0,5,0,2	at Display (c)	
■ key	at Display (c)	0502=48 xx xx xx
2,8	at Display (d)	0502=28 xx xx xx
■ key	at Display (d)	

**Note:** YY+40 is a hexadecimal addition result that is calculated by adding an initial data and 40. Determine if the data is the initial data or not by referring to Table 7-11-2 on page 7-724.

#### [Paper Skew from the Return]

Write in the data YY+10 at the address 040D and the data 28 at the address 0525. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<Panel operation> 0,4,0,D

key

at Display (a)	
at Display (a)	

<Panel Display>

040D=YY xx xx xx

RICOH	Technic	Technical Bulletin		
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<b>Replace</b> the following Pg.7-723				
YY+10 (HEX)	at Display (b)			

	at Display (D)	
■ key	at Display (b)	040D=YY+10 xx xx xx
0,5,2,5	at Display (c)	
■ key	at Display (c)	0525=48 xx xx xx
2,8	at Display (d)	
key	at Display (d)	0525=28 xx xx xx

Open and close the Front Cover, because of using the input data. (Refer to item 3.3.1 on page 3-5)

Note: YY+10 is a hexadecimal addition result that is calculated by adding an initial data and 10. Determine if the data is the initial data or not by referring to Table 7-11-2 on page 7-724.

#### 2. When returning the amount of the reversal of the Regist Roller to the value of default.



Figure 7-830. Adjustment of the amount of reversal of Regist Roller

#### [Paper Skew from the hopper]

Write in the data YY at the address 0408. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

Model: ENDISE			Data: 28 Dec 07	No : DC155020
MOUEL EMP 156			Date. 20-Dec-07	NO RG155029
<b>Replace</b> the following.				
Pg.7-724				
<panel operation=""></panel>		<pane< td=""><td>l Display&gt;</td><td></td></pane<>	l Display>	
0,4,0,8	at Display (e)			
■ key	at Display (e)	0408=	YY+40 xx xx xx	

,			
kev	at Display (f)	0408=YY xx xx xx	
Y,Y	at Display (f)		

Note: YY+40 is a hexadecimal addition result that is calculated by adding an initial data and 40. Determine if the data is the initial data or not by referring to Table 7-11-2 on page 7-724.

#### [Paper Skew from the Return]

Write in the data YY at the address 040D. Refer to (Chapter 6, "Maintenance Diagnostics," on page 6-1) and (Refer to item 6.1 on page 6-4).

<panel operation=""></panel>		<panel display=""></panel>
0,4,0,D	at Display (e)	
key	at Display (e)	040D=YY+10 xx xx xx
Y,Y	at Display (f)	
key	at Display (f)	040D=YY xx xx xx

Open and close the Front Cover, because of using the input data. (Refer to item 3.3.1 on page 3-5)

Note: YY+10 is a hexadecimal addition result that is calculated by adding an initial data and 10. Determine if the data is the initial data or not by referring to Table 7-11-2 on page 7-724.

Table 7-11-2. Data of Dat
---------------------------

Address	Initial Data	Release Data Lock
0408	from 0 to 3F	from 40 to 7F
	from 80 to BF	from C0 to FF
040D	from 00 to 0F	from 10 to 1F
	from 20 to 2F	from 30 to 3F
	from 40 to 4F	from 50 to 5F
	from 60 to 6F	from 70 to 7F
	from 80 to 8F	from 90 to 9F
	from A0 to AF	from B0 to BF
	from C0 to CF	from D0 to DF
	from E0 to EF	from F0 to FF

# Technical Bulletin

Reissued: 27-Dec-07 Model: EMP156

Date: 21-June-06

No.: RG155006f

#### **RTB Reissue**

The items in bold italics have been added.				
Subject: Firmwar	re Release History (Engine)		Prepared	d by: T.Tadokoro
From: 2nd Tech	Support Sec. Service Support I	Dept.		
Classification:	Troubleshooting	Part information	tion	Action required
	Mechanical	Electrical		Service manual revision
	Paper path	Transmit/rec	eive	Retrofit information
	Product Safety	🛛 Other (	)	

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
N	G1552685I	December 2007 production
М	G1552685H	September 2007production
L	G1552685G	May 2007 production
K	G1552685F	January 2007 production
J	G1552685E	October 2006 production
I	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After checking the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please see "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected
N	Other changes:
	1. BBF2005 control function was added.
	This function will be available from controller firmware Rev.em301.
	2. The following parts have been added to the PM counter:
	Brake Pad
	Regist Drive Roller Assembly
	Timing Driven Roller
	Heater Lamp Assembly



Model: EMP156 Dat		Date: 21-June-06	No.: RG155006f		
Version	Symptom Corrected				
	<ul> <li>Earth Spring Assembly(5)</li> <li>Sleeve Bearing</li> <li>Feed Roller PHS(L) Assembly</li> <li>Engine Microcode Revisions:</li> </ul>				
	Microcode	Microcode Revision			
	Print Engine - Master 0E				
	Print Engine - Slave	0D (The same	as Rev.M)		
	Print Engine - FPGA	Print Engine - FPGA 08 (The same as Rev.H)			
	AHP(HCF)	0B (The same as Rev.M)			
	Stacker 1 (Container Stacker 1)	0E			
	Stacker 2 (Container Stacker 2)	0E			
Μ	<ul> <li>Other changes:</li> <li>1. Switching tray times were significantly reduced (prior pick-mode). Please refer to RTB: RG155024 for details.</li> <li>2. Heater control was modified.</li> <li>3. To prevent images blurring on 14"x 18" size paper, a function has been added to enable heat roller rotation speeds to be adjusted (1,500rpm&gt;1,490rpm).</li> <li>Engine Microcode Revisions:</li> </ul>				
	Microcode	Revision			
	Print Engine - Master	0D			
	Print Engine - Slave	0D			
	Print Engine - FPGA	08 (The same a	as Rev.H)		
	AHP(HCF)	0B			
	Stacker 1 (Container Stacker 1)	0D			
	Stacker 2 (Container Stacker 2)	0D			

Model: EMP156		Date: 21-June-06	No.: RG155006f		
Version	Symptom Corrected				
L	<ul> <li>Other changes:</li> <li>Paper transport control was changed so that there is no space in between sheets of paper after switching from duplex to simplex printing. This minimizes the drop in print speed when switching from duplex to simplex.</li> <li>Note: There is one exception: The space between sheets is about 2 sheets when switching from Tray 1/2 duplex to the HCF2 lower tray simplex.</li> </ul>				
	Engine Microcode Revisions:				
	Microcode	Revision			
	Print Engine - Master	0B			
	Print Engine - Slave	0B			
	Print Engine - FPGA	08 (The same	as Rev.H)		
	AHP(HCF)	09 (The same	as Rev.K)		
	Stacker 1 (Container Stacker 1)	0B			
	Stacker 2 (Container Stacker 2)	0B			
К	<ul> <li>Other changes:</li> <li>1. New settings added: The reverse rotation angle for the registration roller can now be controlled separately for simplex and duplex printing. This is to minimize skew.</li> <li>2. The heater control parameters were optimized for when switching between thin and thick paper. This will help ensure the proper print speed.</li> <li>3. The pick belt turns in reverse about 25mm when the exit tray is lowered after printing. This is to ensure that the paper does not get caught between the pick belt and separation pawl.</li> </ul>				
	Engine Microcode Revisions:				
	Microcode	Revision			
	Print Engine - Master	0A			
	Print Engine - Slave	0A			
	Print Engine - FPGA	08 (The same	as Rev.H)		
	AHP(HCF)	09			
	Stacker 1 (Container Stacker 1)	0A			
	Stacker 2 (Container Stacker 2)	0A			

# Technical Bulletin

Model: EMP156		Date: 21-June-06	No.: RG155006f	
Version	Symptom Corrected			
J	Other changes: 1. Support of the "Transit Pass Unit".			
	Engine Microcode Revisions:			
	Microcode	Pevision		
	Brint Engine Master			
	Print Engine - Slave	09		
	Print Engine - EPGA	08 (The same	as Rev H)	
	AHP(HCF)	08 (The same	as Rev H)	
	Stacker 1 (Container Stacker 1)	09		
	Stacker 2 (Container Stacker 2)	09		
	Other shanges:	·		
I	Other changes:			
	sensor error.	to prevent unnecessary	detections of the	
	Engine Microcode Revisions:			
	Microcode	Revision		
	Print Engine - Master	08		
	Print Engine - Slave	08		
	ATT (TCF) Stacker 1 (Container Stacker 1)		as Rev.n)	
	Stacker 2 (Container Stacker 2)	08		
		00		
Н	<ul> <li>EC#09 (Print Timeout Error)</li> <li>E312, E313 misdetection.</li> <li>E275 (OC HARD ERROR) misdetection.</li> <li>The image density sometimes decreases in Very Thick mode.</li> <li>Dirty background.</li> </ul>			
	<ul> <li>Other Changes</li> <li>The detection conditions for E072/E073 were changed to prevent unnecessary occurrences.</li> <li>Toner density control was improved.</li> <li>The speed of the cleaner motor was increased to improve cleaning performance.</li> <li>The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).</li> </ul>			
	Engine Microcode Revisions:			

Model: EMP156		Date: 21-June-06	No.: RG155006f	
Version	Symptom Corrected			
	Microcode	Revision		
	Print Engine - Master	07		
	Print Engine - Slave	07		
	Print Engine - FPGA	08		
	AHP(HCF)	08		
	Stacker 1 (Container Stacker 1)	07		
	Stacker 2 (Container Stacker 2)	07		
G	<ul> <li>The image density decreases after 400KC developments are made of an original with high image coverage.</li> <li>EC#09 (print time-out error) occurs when the machine switches from the built-in hopper to the optional hopper (AHP) during a print job.</li> <li>Other Changes</li> <li>The ON timing for the heat roll strip valve was changed so that the paper can separate from the heat roll easier (This minimizes E180).</li> <li>The laser power for Very Thick Mode was optimized (It is the same setting as Thick Mode).</li> <li>Engine Microcode Revisions:</li> </ul>			
	Microcode	Revision		
	Print Engine - Master	06		
	Print Engine - Slave	06		
	Print Engine - FPGA	07		
	AHP(HCF)	07		
	Stacker 1 (Container Stacker 1)	06		
	Stacker 2 (Container Stacker 2)	06		
E	<ul> <li>The motor control was changed to reduce HCF feed jams.</li> <li>E113 (Input Station Feed Jam4), E11B (Input Station Feed Jam12)</li> <li>Other Changes: <ul> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a paper weight.</li> <li>The amount of stack offset between jobs can now be adjusted for long paper.</li> <li>Added an Air Pressure Adjustment.</li> <li>Added an ST Stopper Adjustment (to the driver test).</li> </ul> </li> </ul>			
# Technical Bulletin

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Model: EMP156		te: 29-Jan-08		No.: RG155030			
Subject: EMP156	6 Controller Maintenance Man		Prepared	d by: T.Ta	adokoro		
From: PPBG QA/Service Planning Deplt.							
Classification:	Troubleshooting	Part informa		tion	Action	required	
	Mechanical	Electrical			Servic	e manual revision	
	Paper path	Transmit/rec		nit/receive 🗌 Retr		it information	
	Product Safety	Other (		)			

The Controller Maintenance Manual was changed as follows.

## Replaced the following.

. Pg.2-1

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Model: EMP156

Date: 29-Jan-08

No.: RG155030

# Chapter 2 Printer Overview

The controller provides computer connectivity and highly efficient printing capabilities for black and white printers. It is optimized for high-speed network communications, processing, rasterization, and printing of half-tone pages.

## Features

As an integral part of the printing system, the controller enables users to:

- Send files via network with TCP/IP protocol or AppleTalk protocol. With the
  optional Network Interface Card installed, additional network protocols are
  available. (Optional Network Interface Card is already discontinued.)
- Use software running on network-enabled PC's to control spooled print jobs.
- Print text and images in black and white and grayscale.
- Print PCL5e, PCL XL and PostScript files. Supports for PDF and TIFF files are also available. Support for IPDS files is also available as an option.
- Use resident PostScript and PCL fonts, and download additional PostScript and PCL fonts as needed. IPDS fonts are available as an option.



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**Replaced** the following. Pg.2-5

## **Print Options**

The controller's efficient PostScript, PCL 5e/XL, PDF/TIFF and optional IPDS capabilities allow customers to use a variety of applications to create printed pages of text and/or images over a network.

# Added the following. Pg.3-9

BRAKE PAD

Use for reset the counter when replacing the BRAKE PAD.

REGIST ROLLER

Use for reset the counter when replacing the REGIST DRIVE ROLLER ASSEMBLY.

TIMING ROLLER

Use for reset the counter when replacing the TIMING DRIVEN ROLLER.

HEATER LAMP

Use for reset the counter when replacing the HEATER LAMP ASSEMBLY.

EARTH SPRING

Use for reset the counter when replacing the EARTH SPRING ASSEMBLY(5).

SLEEVE BEARING

Use for reset the counter when replacing the SLEEVE BEARING.

FEED ROLLER PHS

Use for reset the counter when replacing the FEED ROLLER PHS(L) ASSEMBLY.

RICOH	Technical B	Technical Bulletin		
Model: EMP156		Date: 29-Jan-08	No.: RG155030	
Replaced the following.				

Pg.3-11

- Enter a new password using the ten-key pad then press Enter (■).
- Re-enter the password and press Enter (■). The display will indicate that the password has been changed.



If the password is lost or forgotten it cannot be recovered. In that case,

replace the HDD.

## Factory Default

Factory Default menu provides the function to initializing parameters to default setting. Following table shows factory default value of each parameters. Several parameters does not change to the factory default value when the Factory Default menu is performed

		Factory Default Value	
Printer	Paper	Default	Auto Select
	Source	Paper Size (Common in all Trays)	Folio (Note2)
		Paper Type (Common in all Trays)	Plain
		Paper Color (Common in all Trays)	White
		Paper Weight (Common in all Trays)	20 lb. bond
		HV Adjust	0
		Table Adjust (Common in all Trays)	Normal (Note1)
		Paper Moisture (Common in all Trays)	Normal (Note1)
		HCF Tray Control	Normal Pick Mode (Note 1)
	Paper	Default Output	Container 1 Lower
	Output	Stacking Level (Common in all Trays)	100%
	Options	Wait Timeout	300 second
		LPD Queuing	Disable
		Duplex-Always	Disable
		Print Density	Middle (Note1)
	-	Auto Proof Sample	0
		Cover Insert Mode	Cover Insert
		Faceup Always	Disable
	PostScript	Print Errors	Enable
		Best Fit	Enable
		Job Timeout	0 second
		Halftone (Note3)	Medium, 106lpi
		PS Wait Timeout	295 second
	PCL	Wide A4	Disable
		Requested Tray	Exclusively
	IPDS	Caching	Enabled
		Font Capture	Enabled

Table	3-2.	Factory	/ Default

Note1: This parameter does not change to the factory default value when the Factory Default menu is performed.

Note2: This value is only available when the Custom Size Switch is set to the "Custom" position.

Note3: This option is only displayed when the Halftone Selection is Enable.



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## Replaced the following.

Pg.3-12

	Parameter					
Setup	OCP	Brightness			10	
		Contrast		10		
		Buzzer Volume		3		
	Service	Password	System	(None) (Note1)		
			Service		(None) (Note1)	
		Configuration	OPC Surface V	olt	Enable (Note1)	
			OCP Mode	User Menu	Disable (Note1)	
				Auto Winding	Enable (Note1)	
			Tray Adjust	Side Nozzle (Common in all Trays)	AutoSelect (Note1)	
				Solenoid (Common in all Trays)	AutoSelect (Note1)	
			Stacker Adjust Job Offset (Common in all Trays) Front Jogger (Common in all Trays) Rear Jogger (Common in all Trays) Stopper (Common in all Trays) Offset (Common in all Trays)		Enable (Note1)	
					0 (Note1)	
					0 (Note1)	
					0 (Note1)	
					0 (Note1)	
			Wind, Fuser W	eb	60 (Note1)	
			Heat Roll Tmp		Normal (Note1)	
			Transfer Currer	Transfer Current		
			Temp/Humid Ctrl Thickness Setup		Enable (Note1)	
		.			Normal (Note1)	
			Post Device	Sheet Rotator	Not Installed (Note 1)	
			Config	Cover Feeder	Not Installed (Note 1)	
				Binder	Not Installed (Note 1)	
			Set Time Mode		Auto (Note 1)	
		Halftone Selection			Disable	
		MIB Function			Standard (Note 1)	
		Click Charge Cour	nt Value		Hide (Note 1)	
	System	Exit Jam Recovery	/		Enable	
		Network (AUX)	IP Address	IP Address		
			Subnet Mask		0.0.0.0	
			Gateway Addre	988	0.0.0.0	
			HTTP Port		80	
		Calendar	Time Zone		GMT	
			Date		(Date) (Note1)	
			Time		(Time) (Note1)	
		Country Code			1 (Note1)	
		Energy Save Mode	9		Enable	
		Energy Save Time			15	
		Password			(None) (Note1)	
		Auto Online			Enable	
		Emulation			Auto Select	
		Public R/W			Disable	
		Auto Backup Time			1:00	
		Output Cascade	Cascade Priorit	ty	Lower to Upper	
			Cascade on CS	S Open	Stop	
	Language				English	

Note1: This parameter does not change to the factory default value when the Factory Default menu is performed.

## Table 3-2. Factory Default - Continued

Т	echnical	Bul	letin
	00111001		

Model: EMP156

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**Replaced** the following. Pg.3-15

Thickness Setup

Defines the thickness of the printing line. Can be set to Very Thick, Thicken, Normal or Thin. Refer to Chapter 5 in the Engine Maintenance Manual for more information.

Engine Diagnosis

This menu is used for diagnose the various function of the engine. Following options are available in this menu.

- Read/Write Memory
- Power On Test
- Driver Test 1
- Driver Test 2
- Heat Run Test 1
- Heat Run Test 2
- Sensor Test 1
- Sensor Test 2
- Adjustment Function

Refer to Chapter 6 in the Engine Maintenance Manual for details.

Specific Log

The Specific Log menu is used for specify the Engine Error Codes for capturing the Specific Engine Log.

You can specify up to four error codes in this page. Available codes are from "E001" to "E4FF".

Post Device Config

Defines device configuration for Post Device (Sheet Rorator, Cover Feeder and Binder). Set to "Installed" when relevant device is installed.

Set Time Mode

Defines "Auto" or "Manual" for setting of waiting time of "End of Set" signal to post device.

Set Time

Defines the waiting time of "End of Set" signal to post device when the "Set Time Mode" is "Manual".

### PM Counter Reset

This menu is used for reset the PM (Preventive Maintenance) counter. If this menu is executed, the PM counter is reset to "800K".

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**Replaced** the following. Pg.3-16

### System Software

This menu is used for updating the system software. Refer to the Upgrade Instructions of the new system software for details.

### Backup/Restore

This menu is used for performing the Backup/Restore function. Refer to "Backup and Restore" on page 5-24 for details.

### Halftone Selection

Can be set to enable or disable. When set to enable, the "Halftone" menu is appeared in the PostScript menu on the OCP.

### Test Print

Touch to execute various kind of test print. Following options are available in this menu.

Print Quality

Following test patterns are available for checking the print quality.

- Solid Black
- Square Blk/Skew
- Half Tone
- Ghost G
- Jitter
- Large Letter
- Diagonal Lines
- Density Scale
- Small to Large
- Text File 4%
- Cross Pattern
- Finishing Test
  - Jogging

This test is for checking the offset stacking function of the container stacker.

Path Through

This test is for chencking the Path Through mode of the Post Device.

Finishing

This test is for checking the Post Device with finishing function.

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**Replaced** the following. Pg.3-17

## Log Print

Touch to print various kind of Log Data.

Controller

Following controller logs can be printed in this menu.

- Error Log
- Event Log
- Software Log
- Service Log
- Engine

Following engine logs can be printed in this menu.

□ Engine Log 1/2/3/4/5

These logs are captured when the engine requests to capture the Log. These logs are located in order of the generation, and the "Engine Log 1" is a most recent record.

Specific Log 1/2/3/4/5

These Logs are captured when prespecified engine errors are occurred. These logs are located in order of the generation, and the "Specific Log 1" is a most recent record. The error codes for these logs can be specified by "Specific Log" menu. Refer to "Specific Log" on page 3-15 for more information.

## **Config Print**

Touch to print a list of various configuration parameters in the Service menu.

### MIB Function

Can be set to "Standard" or "InfoPrint model". When set to "Standard", printer replies MIB objects as standard model. When set to "InfoPrint model", printer replies MIB objects as InfoPrint model.

### **Click Charge Count Value**

Can be set to "Hide" or "Show". When set to "Show", the Click Charge Counter is appeared in the OCP, Web and the Status Page. When set to "Hide", the Click Charge Counter is disappeared.

## Click Charge Double Count

Can be set to Enable or Disable. When set to Enable, counter counts +1 per page if paper length (feed direction) is shorter than 8.5 inches, or +2 per page if paper length is longer than 8.5 inches. When set to Disable, counter counts +1 per page regardless of page size.



Model: EMP156

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## Replaced the following.

Pg.3-18

#### Table 3-3. Service Menu Structure

Letvel	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Setup	Service	Input Password	Consumables	Report		
				UC Parts	Developer Mix	Exhaust
						Supply
					Heat Roll	
					OPC	Winding OPC Sheet
						Counter
					Backup Roll	
					Cleaner Brush	
					Transfer Belt	
					Fuser Web	
				PR Parts	TR WIRE/CI FANER	
					COROTRON CASE	
					CH WIRE/CLEANER	
					CHARGER GRID	
					CH WIRE HOLDER	
					DC WIRE/CLEANER	
					COROTRON WIRE	
					TC WIRE HOLDER	
					OZONE EILTER	
					BR SEPARATOR	
					(Note1)	
					AHP1 U PICK BELT	
					(Note1)	
					AHP2 L PICK BELT	
					(Note1)	
					AHP2 U PICK BELT	
					(Note1)	
					ST1 ROLLER (L)	
					ST1 ROLLER (U)	
					ST2 ROLLER (L)	
					(Note2)	
					ST2 ROLLER (U)	
				,		•
					REGIST ROLLER	
			Passworde	System	Input Password	
			asswords	Sonvice	Input Password	
			Easton: Default	Service	input Fassword	
			Factory Default			

Note 1: Only displayed when the HCF is installed.

Note 2: Only displayed when the Additional Stacker is installed.

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Model: EMP156 Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.3-19

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Mode	EMP1	56				Dat	Date: 29-Jan-08 No		No.: R	<b>\o</b> .: RG155030	
			Table 3-3.	Service Me	Menu Structure - Continued			ed			
Letvel	Le2/el	Level 3	Level 4	Level 5	Leve	el 6	Level 7	Le	vel 8	Level 9	
Setup	Service	input	Configuration	Unit Config	Contain	er 1					
		Password			Contain	er 2					
					(Note2)	loto1)					
						lote1)					
					Transit F	Path					
					Unit (No	te3)					
				OPC Surface	Enable/						
				Volt	Disable		Enchle (Dischle				
				OPC Mode	Oser Me	nding	Enable/Disable				
				Trav Adjust	Side No	7716	1	AutoSe	elect/		
				Tray Aujust		2210		Enable	/Disable		
							2	AutoSe	elect/	-	
								Enable	/Disable		
							HCF1 Lower	AutoSe	elect/		
							HCE1 Upper		aloct/	4	
							(Note1)	Enable	/Disable		
							HCF2 Lower	AutoSe	elect/	1	
							(Note1)	Enable	/Disable		
							HCF2 Upper	AutoSe	elect/	]	
					Colonoir		(Note1)	Enable	/Disable	-	
					Solenoid	1	1	Enable	/Disable		
							2	AutoSe	elect/	-	
								Enable	/Disable		
							HCF1 Lower	AutoSe	elect/		
							(Note1)	Enable	/Disable	-	
							(Note1)	Enable	/Disable		
							HCF2 Lower	AutoSe	elect/	-	
							(Note1)	Enable	/Disable		
							HCF2 Upper	AutoSe	elect/	1	
				Otestian Adiust	Contain		(Note1)	Enable	/Disable		
				Stacker Adjust	Lower	ern	Job Offset	Adjust	/Disable	-	
					201101		Profit Jogger		Screen	4	
							Stopper	Adjust	Screen	-	
							Offset	Front		Adjust Screen	
								Rear		Adjust Screen	
					Contain	er 1	Job Offset	Enable	/Disable		
					Upper		Front Jogger	Adjust	Screen	]	
							Rear Jogger	Adjust	Screen	]	
							Stopper	Adjust	Screen		
							Offset	Front		Adjust Screen	
					Contain	or 2	Job Offset	Enable	Disable	Aujust Screen	
					Lower	51 2	Front Jogger	Adjust	Screen	4	
					(Note2)		Rear longer	Adjust	Screen	-	
							Stopper	Adjust	Screen	4	
							Offset	Front		Adjust Screen	
								Rear		Adjust Screen	
					Contain	er 2	Job Offset	Enable	/Disable		
					Upper		Front Jogger	Adjust	Screen	]	
					(ivote2)		Rear Jogger	Adjust	Screen	]	
							Stopper	Adjust	Screen		
							Offset	Front		Adjust Screen	
				Wind Fuser	60			Rear		Adjust Screen	
				Web	40		4				
					20		4				
					20						

Note 1: Only displayed when the HCF is installed.

Note 2: Only displayed when the Additional Stacker is installed.

Note 3: Only displayed when the Transit Path Unit Type 156 is installed.

RICOH	R	Ι			-
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Model: EMP156 Date: 29-Jan-08 No.: RG155030

**Replaced** the following. Pg.3-20



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Model: EMP156

Date: 29-Jan-08 No.:

No.: RG155030

#### Table 3-3. Service Menu Structure - Continued

Leivel	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Setup	Service	Input	Configuration	Heat Roller Imp	Higher		
		Password		· · ·	Normal	1	
				·	Lower	+	
				Transfer Current	Higher		
					Normal	•	
				·	Lower		
				Engine Revision			
				Engine Data			
				Temp/Humid Ctrl	Enable/Disable		
				Thickness Setur	Von Thick		
				Thickness Setup	Thiskop	-	
					Normal	-	
					Thin	-	
				Engine	Pood/M/rito	Enter Address	Enter Date
				Diagnosis	Memory	Enter Address	Enter Data
					Power On Test	ALL MODULE	
						PR MASTER	
						PR SLAVE	
						ST1	
						ST2	
						AHP	
					Driver Test 1	PR	Enter Device No.
					_	ST1	Enter Device No.
						ST2 (Note2)	Enter Device No.
						AHP (Note1)	Enter Device No.
						Transit Pass Unit (Note3)	Enter Device No.
					Driver Test 2	PR	Enter Device No.
					_	ST1	Enter Device No.
						ST2 (Note2)	Enter Device No.
						AHP (Note1)	Enter Device No.
						Transit Pass Unit (Note3)	Enter Device No.
					Heat Run Test 1	ALL MODULE	
						PR	
					_	ST1	
						ST2 (Note2)	
						AHP (Note1)	
					Heat Run Test 2	ALL MODULE	
						PR	
					-	ST1	-
						ST2 (Note2)	
						AHP (Note1)	<b>⊢</b> I
					Sensor lest 1	PR CT4	
					_	511 070 (Note 0)	
						S12 (Note2)	
						AHP (Note1)	
					Concert Tool C	Transit Pass Unit (Note3)	L I
					Sensor lest 2	Enter Device No.	
					Function	Enter Device No.	
				Specific Log	Error Code 1	Enter Error Code	
					Error Code 2	Enter Error Code	
					Error Code 3	Enter Error Code	
					Error Code 4	Enter Error Code	
				Post Device	Sheet Rotator	Installed/Not Installed	
				Cornig (Note3)	Cover Feeder	Installed/Not Installed	
					Binder	Installed/Not Installed	
				Set Time Mode (Note3)	Auto/Manual		
				Set Time	0 - 250		
				involesi			

Note 1: Only displayed when the HCF is installed. Note 2: Only displayed when the Additional Stacker is installed. Note 3: Only displayed when the Transit Path Unit Type 156 is installed.

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Model: EMP156

Date: 29-Jan-08

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### Replaced the following.

Pg.3-21

#### Table 3-3. Service Menu Structure - Continued

Letvel	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
Setup	Service	Input	PM Counter Reset					
		Fassword	System	Disk Test				
			Software	Upgrade	Input Password	Print Server		
				System		HCF		
						Container Stacker		
						Print Engine -		
						FPGA		
						Print Engine- Slave		
						Print Engine-		
						Master		
						Controller		
						OCP Logo		
			Bashus (	Bashus		OCP		
			Backup/ Restore	Васкир	All HDD Data	-		
					Focios Data	4		
					Controller	-		
			· ·	Restore	HDD Data	-		
					Engine Data	1		
					Controller	1		
			Halftone Selectios	Enable / Disable				
			Test Print	Print Quality	Solid Black	Paper Source	Paper Destination	
					Square Blk/ Skew	Paper Source	Paper Destination	
					Half Tone	Paper Source	Paper Destination	
				· ·	Ghost G	Paper Source	Paper Destination	
					Jitter	Paper Source	Paper Destination	
					Large Letters	Paper Source	Paper Destination	
					Diagonal Lines	Paper Source	Paper Destination	
					Density Scale	Paper Source	Paper Destination	
					Small to Large	Paper Source	Paper Destination	
					lext File 4%	Paper Source	Paper Destination	
			·	Finishing Test	Container	logging	Paper Source	Paper Destination
				r maning reat	Finisher	Path Through	Paper Source	r aper Destination
						(Note 1)	Paper Source	
						(Note 1)	Paper Source	
			Log Print	Controller	Error Log			
					Event Log			
					Software Log	-		
			.	Engine	Service Log	-		
				Lingine	Engine Log 2	-		
					Engine Log 3	1		
					Engine Log 4			
				· ·	Engine Log5	1		
					Specific Log 1	]		
					Specific Log 2	]		
					Specific Log 3			
					Specific Log 4	4		
			Config Print		opeonic Log 5			
			MIB Function	Standard /				
				InfoPrint model				
			Click Charge Count Value	Hide / Show				
			Click Charge	Enable / Disable				
			Double Count (Note 2)					

Note 1: Only displayed when the Transit Path Unit Type 156 is installed. Note 2: Only displayed when the Click Charge Count Value is "Show".

Model: EMP156

Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.4-3

## Accessing the Web Utilities

To access the Web Utilities, enter the IP address or DNS name of the printer in the address bar of your Internet browser. The Home Page is the first page that will be displayed.



Figure 4-2. Accessing the Web Utilities

You can make a selection from the Home Page or wait 90 seconds for the Status-General page to be automatically displayed.



Model: EMP156

Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.4-5

## Site Map

This page displays the overall layout of the Web pages and is useful for locating information.

Printer Display			Site	Map
		MAI	NAGE	
🏉 Manage	Status	Sv	stem	Configuration
	General	General		General
Sarsica	Тгау	PostScript		Events
Jer one	Tray f	IPDS		Configuration
<u>2</u>	Tray 2	- Parame	ter	Password
	HCF1 Lower	- Forms		Miscellaneous
	HCF1 Upper	- Capture	C. C	Calendar
Status	HCF2 Lower	Options		Trav Map
• System	HCF2 Upper	Tray		Communication
General	Paper Output	Tray 1		TCP/IP
Trans	Consumables	Tray 2		
Tray December 1	Errors	HCF1 Lowe	r	
Paper Output	lisane	HCF1 Uppe	r	
Virtual Printer	Network	HCF2 Lowe	r	
Accounting	TCP/P	HCF2 Uppe	r	
Jobs	Penerte	HV Adjust		
Serial No.	Perdelana	Paper Color	r	
Configuration	IVEVISIONS	HCF Tray C	ontrol	
		Paper Outpu	t	
		Virtual Printe	i.	
		Accounting		
		Jobs		
		Serial No.		
		SER	VICE	
	Service			Configuration
	Concurration		Bacquard	oonngereenn
	DD Darter		Fassword Kee	ada
	PR Paris		Elicense Reyo	Lode
	Page Counter		Events	
	Documentation		Address Bool	ĸ
	Engine Config		Dealer	
	General		MISC	
	Onit Config			
	Stacker Adjust			
	Iray Adjust			
	Specific Engine Log			
	Reset			
	Log			
	LOG			

Figure 4-4. Site Map



Model: EMP156

Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.4-7

## Service-Service Options

Each of the options available under Service-Service are described in the following table. You must have the Service password to access or update these Web pages.

#### NOTES:

It is the responsibility of the servicing dealer and/or system administrator to set and secure passwords in the Web Utilities. To access the Service area, enter the User Name service. The default password is blank and should be changed when the printer is installed.

Option	Description
Consumables	Displays all of the lifetime counters for the consumables. A status button graphically displays the condition of each consumable.
PR Parts	Displays all of the lifetime counters for the Periodic Replacement Parts of the printer. A status button graphically displays the condition of each consumable.
Page Counter	Displays counters for each input tray and each output tray. Also displays counts for total pages, process and click charge.
Documentation	Displays links to all service documentation.
Engine Config	Provides the ability to display or modify several engine configuration values.
Reset	Provides the ability to reset the system configuration.
Log	Provides access to Error, Event, Software and Service logs, and various Engine Logs. Allows you to enter a detailed description of a service visit, displays date and time of last modification, and allows download of the various logs.

#### Table 4-3. Service-Service Options

RICOH	R	Ι			-
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Model: EMP156 Date: 29-Jan-08 No.: RG155030

**Replaced** the following. Pg.4-9



Model: EMP156

Date: 29-Jan-08

No.: RG155030

## Service-PR Parts

The Service-PR Parts page displays all of the lifetime counters for the Periodic Replacement parts of the printer. The status buttons graphically display the condition of each Periodic Replacement Parts.

After you replace a Periodic Replacement Parts in the Item list, check the box in the Select column and click the **Reset Counter** button.

Service - PR Parts         Consumable         TRANSFER WIRE & CLEANING PIECES [ke]         Corororon Case(F)/(R) [ke]         Service         Consumables         PR Parts         Page Courter         Documentation         Engine Config Reset         Log         Configuration         AHP LOWER PICK BELT [kpie]         AHP LOWER PICK BELT [kpie]         AHP 2 LOWER PICK BELT [kpie]         Still LOWER ROLLER ASSEMBLY [ki]         Still UPPER PICK BELT [kpie]         AHP 2 LOWER ROLLER ASSEMBLY [ki]         Still UPPER PICK BELT [kpie]         AHP 2 LOWER ROLLER ASSEMBLY [ki]         Still UPPER DICK BELT [kpie]         AHP 2 LOWER PICK BELT [kpie]         Still LOWER ROLLER ASSEMBLY [ki]         Still UPPER IDLER ROLLER ASSEMBLY [ki]	Current 2388 2312 2369 208 2388 2388 2388 597 697 2455 825 366 97 366 97 19 18 38	Limit 6000 18000 3000 6000 6000 6000 6000 6000 4800 9600 9600 9600	Status O O O O O O O O O O O O O
Paper Out Tray 2       Consumable         Image       TRANSFER WIRE & CLEANING PIECES [ke]         Image       COROTORON CASE(F)/(R) [ke]         Image       CHARGER WIRE & CLEANING PIECES [ke]         Image       Construmation         Image       Stope         Image       Stope         Image       Configuration         Image       AHP LOWER PICK BELT [kgie]         Image       AHP 2 UPPER PICK BELT [kgie]	Current 2388 2312 2369 208 2388 2388 597 2388 597 2455 825 366 97 366 97 19 18 38 31	Limit 6000 18000 6000 6000 6000 6000 6000 4800 9600 9600 9600	
<ul> <li>TRANSFER WIRE &amp; CLEANING PIECES [ke]</li> <li>COROTORON CASE(F)(R) [kc]</li> <li>CHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>CHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>CHARGER WIRE HOLDER F/R [kc]</li> <li>CHARGER WIRE A CLEANING PIECES [ke]</li> <li>CHARGER WIRE HOLDER F/R [kc]</li> <li>DISCHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>ERASE COROTRON WIRE [kc]</li> <li>Consumables</li> <li>PR. Parts</li> <li>Page Counter</li> <li>Documentation</li> <li>Engine Config</li> <li>Reset</li> <li>Log</li> <li>Configuration</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>AHP 2 UPPER PICK BELT [kpie]</li> <li>AHP 2 UPPER PICK BELT [kpie]</li> <li>ST1 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> </ul>	2388 2312 208 208 2388 597 697 2455 825 366 97 19 19 18 3	6000 18000 6000 9000 6000 6000 6000 4800 9600 9600 9600	
<ul> <li>COROTORON CASE(F)(R) [ke]</li> <li>Manage</li> <li>CHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>CHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>CHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>DISCHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>ERASE COROTRON WIRE [ke]</li> <li>DISCHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>ERASE COROTRON WIRE [ke]</li> <li>Consumables</li> <li>PR Parts</li> <li>Page Counter</li> <li>Documentation</li> <li>Engine Config</li> <li>Reset</li> <li>Log</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>STD HP UPPER PICK BELT [kpie]</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>STI LOWER PICK BELT [kpie]</li> <li>STI LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>STI UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTERCOR FEDER INTIL heil</li> </ul>	2312 2369 208 2388 597 697 2455 825 366 97 19 18 18 3	18000 3000 9000 6000 6000 6000 4800 9600 9600	
CHARGER WIRE & CLEANING PIECES [kc] CHARGER GRID [kc] CHARGER GRID [kc] CHARGER GRID [kc] CHARGER WIRE HOLDER F/R [kc] CHARGER WIRE HOLDER F/R [kc] CHARGER WIRE & CLEANING PIECES [kc] CHARGER WIRE HOLDER F/R [kc] CHARGER WIRE & CLEANING PIECES [kc] CHARGER WIRE & STD HP UPPER PIECK BELT [kpie] CHARGER & STI LOWER IDLER ROLLER ASSEMBLY [ki] CHARGER & STI LOWER IDLER ROLLER ASSEMBLY [ki] CHARGER & STI UPPER IDLER ROLLER ASSEMBLY [ki	2369 208 2388 597 697 2455 825 366 97 19 18 3	3000 6000 6000 6000 6000 4800 9600 9600 9600	
CHARGER CRID [kc] CHARGER WIRE HOLDER F/R [kc] CHARGER WIRE HOLDER F/R [kc] CHARGER WIRE & CLEANING PIECES [kc] CHARGER WIRE & CLEANING PIECES [kc] CONSUMABLES FR. Parts Fage Counter Documentation Engine Config Reset Log AHP LOWER FICK BELT [kgie] AHP LOWER PICK BELT [kgie] AHP LOWER PICK BELT [kgie] AHP LOWER PICK BELT [kgie] AHP 2 LOWER PICK BELT [kgie] STI LOWER PICK BELT [kgie] AHP 2 LOWER PICK BELT [kgie] STI LOWER PICK BELT [kgie] AHP 2 UPPER PICK BELT [kgie] STI LOWER IDLER ROLLER ASSEMBLY [ki] STI UPPER IDLER ROLLER ASSEMBLY [ki] AIR FILTER [ki] AIR FILTER [ki] AIR FILTER [ki]	208 2388 597 697 2455 825 366 97 19 18 3	6000 9000 6000 6000 6000 4800 9600 9600 9600	
Service     Consumables   PR. Parts   Page Counter   Documentation   Engine Config   Reset   Log   AHP LOWER PICK BELT [kpic]   AHP 2 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   AHP 2 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   AHP 2 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   AHP 2 UPPER PICK BELT [kpic]   ST1 UPPER PICK BELT [kpic]   AHP 2 UPPER PICK BELT [kpic]	2388 597 697 2455 825 366 97 19 18 3	9000 6000 6000 6000 4800 9600 9600 9600	
<ul> <li>DISCHARGER WIRE &amp; CLEANING PIECES [ke]</li> <li>ERASE COROTRON WIRE [kc]</li> <li>ERASE COROTRON WIRE [kc]</li> <li>TC WIRE HOLDER (L)/(R)ASSEMBLY [kc]</li> <li>Consumables</li> <li>FR. Parts</li> <li>BR SEPARATOR [ki]</li> <li>STD HP LOWER PICK BELT [kpie]</li> <li>STD HP UPPER PICK BELT [kpie]</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>AHP 2 UPPER PICK BELT [kpie]</li> <li>ST1 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTER [ki]</li> </ul>	2388 597 697 2455 825 366 97 19 18 3	6000 6000 6000 4800 9600 9600 9600	
<ul> <li>Service</li> <li>Consumables</li> <li>PR. Parts</li> <li>BR SEPARATOR [ki]</li> <li>STD HP LOWER PICK BELT [kpic]</li> <li>STD HP UPPER PICK BELT [kpic]</li> <li>AHP LOWER PICK BELT [kpic]</li> <li>AHP 2 LOWER PICK BELT [kpic]</li> <li>STI LOWER DILER ROLLER ASSEMBLY [ki]</li> <li>STI UPPER DILER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER DILER ROLLER ASSEMBLY [ki]</li> <li>ALR FILTER [ki]</li> </ul>	597 697 2455 825 366 97 19 18 3	6000 6000 4800 9600 9600 9600	
<ul> <li>Service</li> <li>Consumables</li> <li>PR Parts</li> <li>BR SEPARATOR [ki]</li> <li>STD HP LOWER PICK BELT [kpie]</li> <li>STD HP LOWER PICK BELT [kpie]</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>AHP LOWER PICK BELT [kpie]</li> <li>AHP UPPER PICK BELT [kpie]</li> <li>AHP 2 LOWER PICK BELT [kpie]</li> <li>AHP2 LOWER PICK BELT [kpie]</li> <li>STI LOWER DIER ROLLER ASSEMBLY [ki]</li> <li>STI UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTER [ki]</li> </ul>	697 2455 825 366 97 19 18 3	6000 6000 4800 9600 9600 9600	
Consumables       OZONE FILTER(E) [ke]         PR Parts       BR SEPARATOR [ki]         Page Counter       STD HP LOWER PICK BELT [kpie]         Documentation       STD HP UPPER PICK BELT [kpie]         Log       AHP UPPER PICK BELT [kpie]         Configuration       AHP UPPER PICK BELT [kpie]         AHP 2 LOWER PICK BELT [kpie]       AHP 2 UPPER PICK BELT [kpie]         ST1 LOWER DICK BELT [kpie]       ST1 LOWER DICK BELT [kpie]         ST1 UPPER DICK BELT [kpie]       ST1 LOWER DICK BELT [kpie]         ST1 UPPER DICK BELT [kpie]       ST1 UPPER DICK BELT [kpie]         ST1 UPPER DICK ROLLER ASSEMBLY [ki]       ST2 UPPER DICHER ROLLER ASSEMBLY [ki]         ST2 UPPER DICHER ROLLER ASSEMBLY [ki]       AIR FILTER(FOR FETDER UNITLY [ki]	2455 825 366 97 19 18 3	6000 4800 9600 9600 9600 9600	
PR Parts       BR SEPARATOR [ki]         Page Counter       STD HP LOWER PICK BELT [lspic]         Documentation       STD HP UPPER PICK BELT [lspic]         Log       AHP LOWER PICK BELT [lspic]         AHP UPPER PICK BELT [lspic]       AHP UPPER PICK BELT [lspic]         AHP 2 LOWER PICK BELT [lspic]       AHP 2 LOWER PICK BELT [lspic]         AHP 2 LOWER PICK BELT [lspic]       STI LOWER IDLER ROLLER ASSEMBLY [ki]         STI UPPER IDLER ROLLER ASSEMBLY [ki]       ST2 UPPER IDLER ROLLER ASSEMBLY [ki]         ST2 UPPER IDLER ROLLER ASSEMBLY [ki]       AIR FILTER(FOR FETDER INITIALISI)	825 366 97 19 18 3	4800 9600 9600 9600 9600	
Page Counter       STD HP LOWER PICK BELT [kpic]         Documentation       STD HP UPPER PICK BELT [kpic]         AHP LOWER PICK BELT [kpic]       AHP UPPER PICK BELT [kpic]         Configuration       AHP 2 LOWER PICK BELT [kpic]         AHP 2 UPPER PICK BELT [kpic]       AHP 2 UPPER PICK BELT [kpic]         ST1 LOWER DICK BELT [kpic]       ST1 LOWER DICK BELT [kpic]         ST1 LOWER DICK BELT [kpic]       ST1 LOWER DICK ASSEMBLY [ki]         ST1 UPPER DICK ROLLER ASSEMBLY [ki]       ST2 LOWER DICH ROLLER ASSEMBLY [ki]         AIR FILTER(FOR FETDER UNITLY [ki]       AIR FILTER(FOR FETDER UNITLY [ki]	366 97 19 18 3	9600 9600 9600 9600	
<ul> <li>STD HP UPPER PICK BELT [kpic]</li> <li>STD HP UPPER PICK BELT [kpic]</li> <li>AHP LOWER PICK BELT [kpic]</li> <li>AHP 2 LOWER PICK BELT [kpic]</li> <li>AHP 2 UPPER PICK BELT [kpic]</li> <li>AHP 2 UPPER PICK BELT [kpic]</li> <li>ST1 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTER([ki])</li> <li>AIR FILTER(FOR FETDER UNITLY [ki]</li> </ul>	97 19 18 3	9600 9600 9600	0
Reset       AHP LOWER PICK BELT [kpie]         Log       AHP UPPER PICK BELT [kpie]         AHP 2 LOWER PICK BELT [kpie]       AHP 2 UPPER PICK BELT [kpie]         AHP 2 UPPER PICK BELT [kpie]       STI LOWER IDLER ROLLER ASSEMBLY [ki]         STI UPPER IDLER ROLLER ASSEMBLY [ki]       ST2 LOWER IDLER ROLLER ASSEMBLY [ki]         AIR FILTER [ki]       AIR FILTER(FOR FETDER UNITLY [ki]	19 18 3	9600 9600	
Log Configuration AHP UPPER PICK BELT [kpie] AHP2 LOWER PICK BELT [kpie] AHP2 UPPER PICK BELT [kpie] AHP2 UPPER PICK BELT [kpie] ST1 LOWER IDLER ROLLER ASSEMBLY [ki] ST1 UPPER IDLER ROLLER ASSEMBLY [ki] ST2 UPPER IDLER ROLLER ASSEMBLY [ki] AIR FILTER(FOR FETDER UNITL) [ki] AIR FILTER(FOR FETDER UNITL) [ki]	1B 3	9600	
<ul> <li>Configuration</li> <li>AHP2 LOWER PICK BELT [kpic]</li> <li>AHP2 UPPER PICK BELT [kpic]</li> <li>ST1 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST1 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTER(FOR FETDER UNITLY [ki]</li> </ul>	Э		0
<ul> <li>AHP2 UPPER PICK BELT [kqie]</li> <li>ST1 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST1 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 LOWER IDLER ROLLER ASSEMBLY [ki]</li> <li>ST2 UPPER IDLER ROLLER ASSEMBLY [ki]</li> <li>AIR FILTER [ki]</li> <li>AIR FILTER (FOR FETDER UNITLY [ki]</li> </ul>		9600	0
ST1 LOWER IDLER ROLLER ASSEMBLY [ki]         ST1 UPPER IDLER ROLLER ASSEMBLY [ki]         ST2 LOWER IDLER ROLLER ASSEMBLY [ki]         ST2 UPPER IDLER ROLLER ASSEMBLY [ki]         AIR FILTER [ki]         AIR FILTER(FOR FETDER UNITLY [ki]	4	9600	0
ST1 UPPER IDLER ROLLER ASSEMBLY [ki]         ST2 LOWER IDLER ROLLER ASSEMBLY [ki]         ST2 UPPER IDLER ROLLER ASSEMBLY [ki]         AIR FILTER [ki]         AIR FILTER(FOR FETDER UNITLY [ki]	166	9600	0
ST2 LOWER IDLER ROLLER ASSEMBLY [ki]         ST2 UPPER IDLER ROLLER ASSEMBLY [ki]         AIR FILTER [ki]         AIR FILTER(FOR FETDER UNITLY [ki]	62	9600	0
ST2 UPPER IDLER ROLLER ASSEMBLY [ki]  AIR FILTER [ki]  AIR FILTER(FOR FETDER UNITLY [ki]	1B	9600	0
AIR FILTER [ki]	13	9600	0
AIR FILTER(FOR FEEDER UNIT) ) Indi	508	3200	0
	42	3200	0
AIR FILTER(FOR FEEDER UNIT2) [ki]	10	3200	0
DISCHARGER CASE [kc]	597	18000	0
CARBON ELECTRODE [ki]	144	6000	0
🔲 BRAKE PAD [ki]	0	9600	0
REGIST DRIVE ROLLER ASSEMBLY [ki]	0	17600	0
TIMING DRIVEN ROLLER [ki]	0	17600	0
HEATER LAMP ASSEMBLY [ki]	0	19200	0
EARTH SPRING ASSEMBLY(5) [ki]	0	4800	0
SLEEVE BEARING [ki]	0	19200	0
🔲 FEED ROLLER PHS (L) ASSEMBLY [ki]		12800	

RI	)H

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**Replaced** the following. Pg.4-10

Service-Page Counter

The Service-Page Counter page displays counters for each input tray and each output tray of the printer. This page also displays counts for total pages, process and click charge.

Printer Display 😒		
Ready	Servi	ce - Page Counter
	Process [KCycles]	5598999
🏉 Manage	Total Pages [KPages]	118148
	Click Charge Counter [Pages]	335
Service	Trayl [KPicks]	218
	Tray2 [KPicks]	56
	HCF1 Lower [KPicks]	21
• Service	HCF1 Upper [KPicks]	14
Consumables	CS1 Lower [KSheets]	9
PR Parts	CS1 Upper [KSheets]	4
Page Counter	CS2 Lower [KSheets]	٥
Documentation	CS2 Upper [KSheets]	0
Engine Config Reset	Sample Tray [KSheets]	46

Figure 4-8. Service-Page Counter

RI	CO	Η

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**Replaced** the following. Pg.4-12

## Service-Engine Config

### general

The General page provides the ability to display or modify several engine configuration settings. After making the desired changes, click **Submit** to update the settings.

Printer Display 💭		
Ready	Service - Engin	e Configuration
	General Unit Config	Stacker Adjust Tray Adjust
<i>M</i> anage	Specific Engine Log	
🕖 Service		
	Ge	neral
	ltem	Function
• Service	OPC Surface Volt	Enabled 💌
Consumables	OPC Auto Wind	Disabled 💌
PR Parts Page Counter	Winding Fuser Web	60 Pages 💌
Documentation	Heat Roller Trup	Normal
Engine Config Reset	Transfer Current	Normal
Log	Temp_Humid_Ctrl	Enabled 💌
Configuration	Thickness Setup	Very Thick
	Post Device Config	Sheet Rotator + Cover Feeder 💌
	Set Time	Auto 💌 🛛 💌
	<u>ร</u> บ	bmit
• Configuration	Thickness Setup Post Device Config Set Time Su	Very Thick  Sheet Rotator + Cover Feeder Auto O O O O O O O O O O O O O O O O O O O

Figure 4-10. Service-Engine Config-General

RICOH	Technical B	ulletin	PAGE: 22/31
Model: EMP156		Date: 29-Jan-08	No.: RG155030

**Replaced** the following. Pg.4-13

## **Unit Config**

The Unit Config page displays current unit configuration of the printer engine.

If you disconnect any unit, check the box in the Select column and click the **Submit** button.

Printer Display	
Ready	Service - Engine Configuration
Manage Service	General Unit Config Stacker Adjust Tray Adjust
-	Unit Config
	Select Unit
Service	Container Stacker 1
Consumables PR Parts	Container Stacker 2
Page Counter	HCF1
Documentation	T FTU
Engine Config Reset	Submit

Figure 4-11. Service-Engine Config-Unit Config

# Technical Bulletin

Model: EMP156

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**Replaced** the following.

Pg.4-17

## Service-Reset

The Service-Reset page provides the ability to reset the system configuration and PM counter, and clear the Logs.

Printer Display 🔿 ?			
Ready Sleep Mode	Service – Reset		
	O Factory Default	Restore image controller configuration to factory default setting. Same as factory default from OCP. System requires power cycle.	
	O PM Counter	Reset Preventive Maintenance Counter.	
🏉 Manage	C Error Log	Delete the error log file.	
	C Event Log	Delete the event log file.	
🕖 Service	C IPDS Log	Delete the IPDS log file.	
		Submit	

Figure 4-15. Service-Reset

	RI	СОН	
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Model: EMP156

Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.4-18

## Service-Log

From this page you can log the details of a service visit and download the following logs.

- Error Log
- Event Log
- Software Log
- Service Log
- Engine Log
- Engine Log 1/2/3/4/5
- Specific Engine Log 1/2/3/4/5
- IPDS Log

The Engine Log 1/2/3/4/5 are captured when the engine requests to capture the Log. These logs are located in order of the generation, and the "Engine Log 1" is a most recent record.

The Specific Engine Log 1/2/3/4/5 are captured when prespecified engine errors are occurred. These logs are located in order of the generation, and the "Specific Engine Log 1" is a most recent record. The error codes for these logs can be specified by "Service-Engine Config-Specific Engine Log" menu.

If you want to capture the current Engine Log immediately, press the "Create Engine Log" button. The "Engine Log" file (no number) is created.

The IPDS Log is shown if the IPDS option is installed.

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**Replaced** the following. Pg.4-22

## **Configuration-License Keycode**

The License Keycode page provides the ability to enter or modify the keycode. The printer will reboot if the keycode is changed and any print data left in the printer will be lost.

This menu will be showed when the printer can support optional IPDS.



Figure 4-18. Configuration-License Keycode(1)

This menu will be showed when the printer can not support optional IPDS.

Printer Display			
Ready	Configuration - License Keycode		
	Assigned Keycode		
<i>M</i> anage <i>Service</i>	Changing the valu Any print data left i	ie requires power cycle. in the printer will be lost. Submit	
<ul> <li>Service</li> <li>Configuration</li> </ul>			

Figure 4-18-2. Configuration-License Keycode(2)

This License Keycode is set as a unique integer by factory setting.

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Replaced the following.

Pg.5-18

## Replacing the Hard Disk Drive

- 1. Secure the HDD to the CE Box Cover using the 4 screws.
- 2. Connect the HDD Cable to the HDD.
- Set the CE Box Cover to the CE Box. Inserts 2 latches of the CE Box into the hole of the CE Box Cover.
- 4. Connect the HDD Power Cable to the HDD.
- 5. Clamp the HDD Power Cable by the cable clamps on the CE Box Cover.
- 6. Connect the Fan Cable to the Controller Main Board connector J21.
- 7. Clamp the Fan Cable by the cable clamps in the CE Box.
- 8. Connect the HDD Cable to the Controller Main Board connector J6.
- **9.** Reassemble the printer as described in "Accessing the Controller Assembly" on page 5-4 or other documentation.
- Verify controller operation as described in "Restoring Controller Functionality After Service" on page 5-8.
- If the replaced HDD has a same controller software revision, perform following Backup/Restore items. If the replaced HDD has a different revision, skip to next step.
  - Setup/Service/Backup/Restore/Restore/HDD Data
  - Setup/Service/Backup/Restore/Backup/Engine Data
  - Setup/Service/Backup/Restore/Backup/Controller
- If the replaced HDD has a different controller software revision, perform following Backup/Restore item.
  - Setup/Service/Backup/Restore/Backup/All

## Reinstalling the Keycode

If the optional IPDS is installed on the HDD, following procedures are needed.

- 1. Start your Internet Browser application.
- To access the Web Tools, enter the IP address of the printer. (The IP address can be obtained from the OCP.)
- 3. Select Service.
- In the Password dialog enter service in the User Name text box and enter the Password (if required). Click OK.
- Select License Keycode from the Configuration menu to display the Configuration-Keycode window.
- Enter IPDS Option PIN Number in PIN Number(IPDS) text box, and enter the keycode for IPDS in the Assigned Keycode(IPDS) text box.
- 7. Check the box in the select column, and click Submit.
- The following message will be displayed: "Keycode was accepted. Reset in progress. It will take several minutes. Please wait."



Model: EMP156

Date: 29-Jan-08

No.: RG155030

**Replaced** the following. Pg.5-26

## Installing a New Keycode

A new keycode is required to enable IPDS option. The keycode is obtained from Customer Support and is installed via the Web Tools.

To obtain a new keycode, contact Customer Support and have the following information available:

Printer serial number.

#### Installing the Keycode

- 1. Start your Internet Browser application.
- To access the Web Tools, enter the IP address of the printer. (The IP address can be obtained from the OCP.)
- Select Service.
- In the Password dialog enter service in the User Name text box and enter the Password (if required). Click OK.
- Select License Keycode from the Configuration menu to display the Configuration-Keycode window.
- Enter IPDS Option PIN Number in PIN Number(IPDS) text box, and enter the keycode for IPDS in the Assigned Keycode(IPDS) text box.
- 7. Check the box in the select column, and click Submit.
- The following message will be displayed: "Keycode was accepted. Reset in progress. It will take several minutes. Please wait."



Model: EMP156

Date: 29-Jan-08

No.: RG155030

Replaced the following. Pg.6-8

### Printing the Status Page

Print the Status Page to make sure that the interface between the printer and the controller is working properly.

If the Status Page does not print at all or has a low-quality image, the controller board, or printer interface cables may be faulty, or the printer may not be functioning properly. In these cases, you should first check controller board connections. If the Status Page still shows there is a problem, run the appropriate Custom diagnostics.

Follow the steps below to print the Status Page.

- 1. Power on the printer and allow it to warm up.
- Before proceeding, make sure that the printer is not in use.
- Touch the Reports icon on the OCP to display the Reports menu (shown below).

Reports	(▲
Status	Configuration
Demo	
Summary	
Disk Directory	
Fonts	

Figure 6-1. Report menu

Touch Status.

The controller sends the Status Page to the printer and displays Ready.

5. Examine the quality of the Status Page from the printer.

The Status Page confirms that the connection between the controller and the printer is good.

# Technical Bulletin

PAGE: 29/31

Model: EMP156

Date: 29-Jan-08

No.: RG155030

Replaced the following.

Pg.6-16

OCP Line 1	OCP Line 2	Error Name	Brief Description
Call for Service	EC#40	EC_DHSYNC_TIMEOUT_ ERROR	DHSYNC signal time-out is detected.
Call for Service	IF#01	NIC interface error	The PostScript task can not send the status message to the Network Interface Card.
Call for Service	IF#02	NIC interface error	The Network Interface Card does not reply a response.
Call for Service	IF#03	NIC sumcheck error	Data from Network Interface Card is invalid.
Call for Service	IF#04	NIC memory error	Memory data from Network Interface Card is invalid.
Call for Service	IF#1x	AppleTalk error	Internal AppleTalk processing error.
Call for Service	OP#01	OCP error	The invalid Menu Number was read.
Call for Service	OP#02	OCP error	The OCP Display Data did not read from the HDD.
Call for Service	BR#11	Backup/Restore error	Restore HDD Data: Revision Mismatch.
Call for Service	BR#12	Backup/Restore error	Restore HDD Data: No backup data.
Call for Service	BR#13	Backup/Restore error	Restore HDD Data: Backup data read error.
Call for Service	BR#14	Backup/Restore error	Restore HDD Data: Data write error.
Call for Service	BR#15	Backup/Restore error	Restore HDD Data: Insufficient memory.
Call for Service	BR#16	Backup/Restore error	Restore HDD Data: Restore time write error.
Call for Service	BR#21	Backup/Restore error	Restore Engine Data: No backup data.
Call for Service	BR#22	Backup/Restore error	Restore Engine Data: Backup data read error.
Call for Service	BR#23	Backup/Restore error	Restore Engine Data: Data write error.
Call for Service	BR#24	Backup/Restore error	Restore Engine Data: Restore time write error.
Call for Service	BR#31	Backup/Restore error	Restore Controller Data: No backup data.
Call for Service	BR#32	Backup/Restore error	Restore Controller Data: Backup data read error.
Call for Service	BR#33	Backup/Restore error	Restore Controller Data: Data write error.
Call for Service	BR#34	Backup/Restore error	Restore Controller Data: Restore time write error.
Call for Service	BR#41	Backup/Restore error	Backup HDD Data: Data Compression Error.
Call for Service	BR#42	Backup/Restore error	Backup HDD Data: Data read error.
Call for Service	BR#43	Backup/Restore error	Backup HDD Data: Backup data write error.
Call for Service	BR#44	Backup/Restore error	Backup HDD Data: Backup time write error.
Call for Service	BR#45	Backup/Restore error	Backup HDD Data: Revision mismatch.
Call for Service	BR#46	Backup/Restore error	Backup HDD Data: Backup time mismatch.
Call for Service	BR#47	Backup/Restore error	Backup HDD Data: Backup time incorrect on Controller Board.

#### Table 6-6. Controller Error Codes (Continued)

# Technical Bulletin

PAGE: 30/31

Model: EMP156

Date: 29-Jan-08

No.: RG155030

## Replaced the following.

Pg.6-17

### Table 6-6. Controller Error Codes (Continued)

OCP Line 1	OCP Line 2	Error Name	Brief Description	
Call for Service	BR#48	Backup/Restore error	Backup HDD Data: Backup time incorrec into HDD.	
Call for Service	BR#51	Backup/Restore error	Backup Engine Data: Data read error.	
Call for Service	BR#52	Backup/Restore error	Backup Engine Data: Backup data write error.	
Call for Service	BR#53	Backup/Restore error	Backup Engine Data: Backup time write error.	
Call for Service	BR#54	Backup/Restore error	Backup Engine Data: Backup time mismatch.	
Call for Service	BR#55	Backup/Restore error	Backup Engine Data: Backup time incorrect into HDD.	
Call for Service	BR#56	Backup/Restore error	Backup Engine Data: Backup time incorrect into CPxxx Ass'y.	
Call for Service	BR#61	Backup/Restore error	Backup Controller Data: Data read error.	
Call for Service	BR#62	Backup/Restore error	Backup Controller Data: Backup data write error.	
Call for Service	BR#63	Backup/Restore error	Backup Controller Data: Backup time write error.	
Call for Service	BR#64	Backup/Restore error	Backup Controller Data: Backup time mismatch.	
Call for Service	BR#65	Backup/Restore error	Backup Controller Data: Backup time incorrect into HDD.	
Call for Service	BR#66	Backup/Restore error	Backup Controller Data: Backup time incorrect on Controller Board.	
Call for Service	Task Exit		Controller program error	
Call for Service	PPC Exception		Controller program error	
Call for Service	PCL FONT LOAD ERROR		The loading of the PCL font was failed.	
Call for Service	HDD Error		HDD access error	
Call for Service	NMI		Controller hardware error	
ecError	—		The printer was unable to boot.	
Boot Failed	—		The printer was unable to boot.	
Suspended Task	—		Controller program error	
CheckNMI	_		Controller hardware error	
IPDS Internal Error	100 ~ 999A	IPDS Internal Error	IPDS Logical Programming Error.	
IPDS Database Error		IPDS Database Error	IPDS Font Resource abnormal data found.	



Model: EMP156

Date: 29-Jan-08

No.: RG155030

Replaced the following.

Pg.6-22

## **IPDS Internal Error**

Problem Cause	Corrective Action	
1. IPDS Logical Programming Error.	Switch off and on the main power.	

### **IPDS Database Error**

Problem Cause	Corrective Action		
<ol> <li>IPDS Font Resource abnormal data</li></ol>	Switch off and on the main power.		
found.	Execute "Printer > IPDS > Reset IPDS Fonts".		

# Technical Bulletin

### Reissued: 25-Mar-08

Model: EMP156	Date: 12-Jun-06	No.: RG155014d

### **RTB Reissue**

Subject: Firmwar	re Release History (Controller)		Prepared	by: T.Tadokoro
From: PPBG QA/	Service Planning Deplt.			
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part informa</li> <li>Electrical</li> <li>Transmit/rec</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em301	G1552684F	March 2008 production
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer
- Confirm revision of current controller software and select the pertinent file from three files and install it.
   Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware.

Version	Symptom Corrected
em301	Symptom Corrected:
	<ol> <li>The page count in the OCP Job menu was changed to display 5 digits from the original maximum of 4 digits.</li> </ol>
	<ol><li>A Warning message recorded as an Error by the Event Log and Error Log is now recorded as a Warning</li></ol>
	3. Print performance slows down when processing PS jobs, which are continuously sent.

### Reissued: 25-Mar-08

Model: EN	1P156	Date: 12-Jun-06	No.: RG155014d	
Version	Symptom Corrected			
version	sion       Symptom Corrected         4. The wrong tray is selected when a tray is specified with the PS inputTrayMask command.         5. The PS inputTrayMask / outputTrayMask command doesn't function correctly.         6. The PJL JOB START/END command doesn't function correctly.         7. When custom sized paper is used with a PCL job, the wrong tray is selected.         8. AppleTalk print doesn't operate correctly when TCP/IP in VPT for AppleTalk is enabled.         Other changes:         1. Added functions and changes to Click Charge Counter         (a) Added Blank pages uncounted feature         (b) Added setting menu for double counting A3         (c) Added menu for display counter / hide counter         (d) Deletion of Click Charge Reset menu         2. Added Faceup Always function         3. IPS InfoPrint compatible MIB (Added "MIB Function" menu for MIB switching)         4. Added Config menu for C.P.Bourg BBF2005         5. Additions to the maintenance part menu in the OCP/WEB         - Brake Pad         - Regist Drive Roller Assy         - Heater Lamp Assy         - Timing Driven Roller         - Eed Roller PHS Assy		the PS sn't function orrectly. rong tray is in VPT for enu for MIB	
em300	<ul> <li><i>Earth Spring Assy</i></li> <li><i>Sleeve Bearing</i></li> <li>Symptom Corrected:         <ol> <li>PS limitcheck error occurs when the pr</li> <li>Log file error occurs when the "reload"</li> <li>Task Exit error occurs when the "samp</li> <li>JavaScript error occurs when LPR/LPE</li> <li>Unable to set spooling when Raw Sock disabled.</li> </ol> </li> <li>Other changes:</li> </ul>	inter is operated arou button on the web uti le" button is touched. o of TCP/IP is disable set is enabled and LP	nd-the-clock. lities is clicked. d. R/LPD of TCP/IP is	
em204	<ol> <li>Supports IPDS.</li> <li>Symptom Corrected:         <ol> <li>The machine uses the wrong output trausing the "PS:setOutputTray" comman</li> <li>A PS error occurs if a blank field is spe</li> <li>A TaskExit error occurs if the printer redriver.</li> <li>The user can access the service menu</li> </ol> </li> <li>Other changes:         <ol> <li>Supports AppleTalk protocol for AUX n</li> <li>Added PS 85lpi half-tone</li> </ol> </li> </ol>	ay when the operator d. cified for /MediaType cieves a specific PCL without a password. etwork I/F.	specifies the tray or /MediaColor. . job created by an M	

### Reissued: 25-Mar-08

Model: EN	IP156	Date: 12-Jun-06	No.: RG155014d	
Version	Symptom Corrected			
	<ol> <li>Added the "PS Wait Timeout" menu to the OCP.</li> <li>Added a counter to the account log file for the number of copy sets.</li> <li>The printer can recieve 4GB or more when Spooling is disabled.</li> <li>Deleted the "EMP156" logo from the Web menu.</li> </ol>			
em202	<ol> <li>Symptom Corrected</li> <li>Preprinted paper printed reverse side when stacked in Sample Tray.</li> <li>French language message displayed malfunction on the OCP.</li> </ol>			
	<ol> <li>Support of the "Transit Pass Unit".</li> <li>Click Charge Counter added. (Counting each page regardless of paper size.)</li> <li>Removal of (mistaken) display of A4 Tab LEF and Letter tab LEF on the OCP</li> </ol>			
em201	<ul> <li>Part of the printed image is shifted in the direction of the scan.</li> <li>Note: This only happens on the RoHS compliant machine</li> </ul>			
em200	<ul> <li>The PostScript version displayed is incorrect. Incorrect: 3011 Correct: 3015</li> <li>Some minor symptoms with PostScript printing were corrected.</li> </ul>			
	Other changes: Supports new RoHS compliant bardware			
em114	<ul> <li>German and French languages were a</li> <li>Paper Color function is supported with</li> <li>Considers the Media Color when p</li> <li>"Printer - Paper Source - Paper Color" menu was added to System - Virtual Printer - each VP</li> <li>String of the Color was added to "</li> <li>"ocpCustomMediaColor" was added</li> </ul>	added. Japanese langua PostScript. processing Media Match olor" menu was added t "Manage - System - Tr T - PostScript" of the W prtInputMediaColor" of t ed in the MIB.	age was deleted. hing. o the OCP. ay" and "Manage - eb Utility. he MIB.	
	<ul> <li>Tracing Paper is supported as a Paper</li> <li>The "Accounting Slip Sheet" function v</li> <li>"Accounting Slip Sheet: Enable/Di System - Virtual Printer - each VP (factory default: Disabled).</li> </ul>	r Type. vas added. sable" option was adde T - General" menu of th	d to the "Manage - e Web Utility	
	<ul> <li>The Image Shift function with PJL com TBCP mode is supported with PostScr</li> <li>Letter and A4 can be selected with PC</li> <li>"Auto Feed Orientation" option wa Options" of the Web Utility.</li> </ul>	imands is supported. ript. L and PJL, regardless o s added to "Manage - S	of sheet orientation. System - General -	
	<ul> <li>The LPD Banner Page function was at &gt; "LPD Banner Page: Enable/Disab System - Virtual Printer" (factory de Improved the switching time between the HCF.</li> <li>The "Printer - Paper Source - HCF OCP.</li> </ul>	dded. le" option was added to lefault: Disabled). the Standard Input Tray <sup>-</sup> Tray Control" menu wa	: "Manage - and Additional as added to the	



### Reissued: 25-Mar-08

Model: EMP156		Date: 12-Jun-06	No.: RG155014d
Version	Symptom Corrected		
Version	<ul> <li>Symptom</li> <li>The "HCF Tray Control" Menu was Utility.</li> <li>A timeout (time limit) was added for LP</li> <li>The configuration Report function was add user adjustable parameters.</li> <li>The "config Print" option was added the OCP for various engine parameters.</li> <li>Added new Default Virtual Printer "Ip" to Changed Default Virtual Printer "TEXT"</li> <li>Changed engine parts name "Cyclone IMIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer for Corrected the page image position for For Corrected the EC#04 error when using</li> <li>Corrected the EC#04 error when using</li> <li>Corrected the Engine FPGA version to the Corrected the PJL USTATUS command</li> </ul>	a <b>Corrected</b> a added to "System - Tr PR, RawTCP and IPP. added. ded to the "Report" mer ed to the "Service - Cor eters. o port 9100. " to "text" for port 3100. Filter" to "Fine Filter" of functionality. PostScript. the HCF2 Upper Tray. tern. e Status Page. er of OPC sheets used d response.	ay" in the Web nu of the OCP for ofiguration" menu of n the OCP / Web /

# Technical Bulletin

### Reissued: 21-May-08

Model: EMP156	Date: 12-Jun-06	No.: RG155014e

#### **RTB Reissue**

Subject: Firmware Release History (Controller)			Prepared	by: T.Tadokoro
From: PPBG QA/	Service Planning Deplt.			
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part information</li> <li>Electrical</li> <li>Transmit/rec</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em302	G1552684G	April 2008 production
em301	G1552684F	March 2008 production
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer

Confirm revision of current controller software and select the pertinent file from three files and install it.

Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware .

Version	Symptom Corrected
em302	Symptom Corrected:
	1. The print performance decreases when 256MB of memory is installed. The EAN128 bar code is printed thinly. Even if 85LPI PS half tone is selected on the OCP, it is not applied.
### Reissued: 21-May-08

Model: EM	IP156	Date: 12-Jun-06	No.: RG155014e	
Version	on Symptom Corrected			
	Other changes: 1. Added the following menu/function in order to change the operating behavior during duplex printing. OCP : Printer—PostScript—Duplex Print Mode—Standard/Compatible Factory default value : Compatible Standard : Adobe-compliant duplex print operation Compatible : DDP specific duplex print operation			
em301	<ul> <li>Symptom Corrected: The page count in the OCP Job menu was changed to display 5 digits from the original maximum of 4 digits. A Warning message recorded as an Error by the Event Log and Error Log, are now recorded as a Warning Print performance slows down when processing PS jobs, which are continuously sent. A wrong tray is selected when a tray is specified with the PS inputTrayMask command. The PS inputTrayMask / outputTrayMask command doesn't function correctly. The PJL JOB START/END command doesn't function correctly. When custom sized paper is used with a PCL job, a wrong tray is selected. AppleTalk print doesn't operate correctly when the TCP/IP in the VPT for</li> </ul>			
	Other changes: Added functions and changes to Click Charge Counter Added Blank pages uncounted feature Added setting menu for double counting A3 Added menu for display counter / hide counter Deletion of Click Charge Reset menu Added Faceup Always function IPS InfoPrint compatible MIB (Added "MIB Function" menu for MIB switching Added Config menu for C.P.Bourg BBF2005 Additions to the maintenance part menu in the OCP/WEB Brake Pad Regist Drive Roller Assy Heater Lamp Assy Timing Driven Roller Feed Roller PHS Assy Earth Spring Assy			
em300	Symptom Corrected: PS limitcheck error occurs when the pr Log file error occurs when the "reload" Task Exit error occurs when the "samp JavaScript error occurs when LPR/LPD Unable to set spooling when Raw Sock disabled. Other changes: Supports IPDS.	inter is operated around button on the web utiliti le" button is touched. o of TCP/IP is disabled. at is enabled and LPR/	I-the-clock. es is clicked. LPD of TCP/IP is	



### Reissued: 21-May-08

Model: EM	IP156	Date: 12-Jun-06	No.: RG155014e
Version	Symptom	n Corrected	
em204	Symptom Corrected: The machine uses the wrong output tray when the operator specifies the tray using the "PS:setOutputTray" command. A PS error occurs if a blank field is specified for /MediaType or /MediaColor. A TaskExit error occurs if the printer recieves a specific PCL job created by an M driver. The user can access the service menu without a password.		
	Other changes: Supports AppleTalk protocol for AUX n Added PS 85lpi half-tone. Added the "PS Wait Timeout" menu to Added a counter to the account log file The printer can recieve 4GB or more w Deleted the "EMP156" logo from the W	etwork I/F. the OCP. for the number of copy hen Spooling is disable eb menu.	/ sets. ed.
em202	Symptom Corrected		
CITZOZ	Preprinted paper printed reverse side when stacked in Sample Tray. French language message displayed malfunction on the OCP.		
	Other changes:		
	Support of the "Transit Pass Unit".		
	Click Charge Counter added. (Countin Removal of (mistaken) display of A4 T	g each page regardles ab LEE and Letter tab	s of paper size.)
em201	Part of the printed image is shifted in th Note: This only happens on the RoHS	e direction of the scan compliant machine.	
em200	The PostScript version displayed is inco Incorrect: 3011 Correct: 3015	orrect.	
	Some minor symptoms with PostScript	printing were corrected	d.
	Other changes:		
em11/	Supports new RoHS compliant hardwa	re. added Jananese Jangu	iane was deleted
611114	<ol> <li>Paper Color function is supported with (7) Considers the Media Color when p</li> <li>(1) "Printor Paper Source Paper Color</li> </ol>	PostScript. processing Media Mate	hing.
	<ul> <li>(イ) "Printer - Paper Source - Paper Co</li> <li>(ウ) "Paper Color" menu was added to</li> <li>System - Virtual Printer - each VP</li> <li>(エ) String of the Color was added to "</li> <li>(オ) "ocpCustomMediaColor" was added</li> </ul>	"Manage - System - T T - PostScript" of the V prtInputMediaColor" of ed in the MIB.	ray" and "Manage - Veb Utility. The MIB.
	<ol> <li>Tracing Paper is supported as a Paper</li> <li>The "Accounting Slip Sheet" function w         <ul> <li>"Accounting Slip Sheet: Enable/Dis System - Virtual Printer - each VPT (factory default: Disabled).</li> </ul> </li> </ol>	Type. ras added. sable" option was adde - General" menu of th	d to the "Manage - e Web Utility
	(a) The Image Shift function with PJL cor (b) TBCP mode is supported with PostSo	mmands is supported.	

### Reissued: 21-May-08

Model: EM	IP156	Date: 12-Jun-06	No.: RG155014e	
Version	Symptom Corrected			
	<ul> <li>(c) Letter and A4 can be selected with PCL and PJL, regardless of sheet orientation.</li> <li>(𝒴) "Auto Feed Orientation" option was added to "Manage - System - General - Options" of the Web Utility.</li> </ul>			
	<ol> <li>The LPD Banner Page function was added.         <ul> <li>(\[mathcal{T}]) "LPD Banner Page: Enable/Disable" option was added to: "Manage - System - Virtual Printer" (factory default: Disabled).</li> </ul> </li> <li>Improved the switching time between the Standard Input Tray and Additional HCF.         <ul> <li>(\[mathcal{T}]) The "Printer - Paper Source - HCF Tray Control" menu was added to the OCP.</li> <li>(\[mathcal{T}]) The "HCF Tray Control" Menu was added to "System - Tray" in the Web Utility.             <ul> <li>A timeout (time limit) was added for LPR, RawTCP and IPP.</li> </ul> </li> <li>The configuration Report function was added.         <ul> <li>(\[mathcal{T}]) The "Config Print" option was added to the "Service - Configuration" menu the OCP for warious engine parameters.</li> <li>(\[mathcal{T}]) The "Config Print" option was added to the "Service - Configuration" menu the OCP for warious engine parameters.</li> </ul> </li> </ul></li></ol>		: "Manage - and Additional as added to the ay" in the Web nu of the OCP for	
	<ol> <li>Added new Default Virtual Printer "lp"</li> <li>Changed Default Virtual Printer "TEX</li> <li>Changed engine parts name "Cyclone MIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printe</li> <li>Corrected the page image position fo</li> <li>Corrected the EC#04 error when using</li> <li>Corrected the "2 on 4 off" test print page</li> <li>Added the Engine FPGA version to the 10. Corrected the PJL USTATUS command</li> </ol>	to port 9100. T" to "text" for port 3100. Filter" to "Fine Filter" or functionality. PostScript. g the HCF2 Upper Tray. ttern. e Status Page. per of OPC sheets used on nd response.	1 the OCP / Web / (10 <b>→ 11</b> ).	

## Technical Bulletin

### Reissued: 25-Nov-08

Model: EMP156	Date: 12-Jun-06	No.: RG155014f

#### **RTB Reissue**

Subject: Firmware Release History (Controller)			Prepared by: T.Tadokoro	
From: PPBG QA/Service Planning Deplt.				
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part information</li> <li>Electrical</li> <li>Transmit/rec</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em303c	G1552684H	Oct 2008 production
em302	G1552684G	April 2008 production
em301	G1552684F	March 2008 production
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer

Confirm revision of current controller software and select the pertinent file from three files and install it.

Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware .

Version	Symptom Corrected		
em303c	Symptom Corrected:		
	Change of FontCache value of PostScript from 60% to 10% of PS memory due to fix performance problem.		



Model: EN	Model: EMP156         Date: 12-Jun-06         No.: RG155014f				
Version	Symptom Corrected				
	<ul> <li>"asn error" is occurred on back channel during MIB access.</li> <li>"Appletalk multicast registration" error is occurred during booting up the printer.</li> <li>IPDS: Stop print when change data stream between IPDS and PostScript.</li> <li>IPDS: Incorrect print when stop and/or recover print is executed by InfoPrint Manager.</li> <li>There are some typos in the OCP and Web menus of German/French.</li> <li>Other changes:</li> <li>Change the behavior of the Bestfit function for PostScript as follows.</li> <li>Change priority of media selection.</li> <li>Before change: MediaType &gt; MediaColor &gt; MediaWeight &gt; LeadingEdge &gt; PageSize</li> <li>After change : PageSize &gt; LeadingEdge &gt; MediaType &gt; MediaColor &gt; MediaWeight</li> </ul>				
	- Change policy for mismatch except /F Before change: Substituted according After change: Ignore.	PageSize. to our policy.			
em302	<ul> <li>m302</li> <li>Symptom Corrected: The print performance decreases when 256MB of memory is installed. The EAN128 bar code is thinly printed. Even if 85LPI PS half tone is selected on the OCP, it is not applied.</li> <li>Other changes: Added following menu/function in order to change the operating behavior, d duplex print. OCP : Printer—PostScript—Duplex Print Mode—Standard/Compatible Factory default value : Compatible Standard : Adobe-compliant duplex print operation Compatible : DDP-specific duplex print operation</li> </ul>				
em301	Symptom Corrected: The page count in the OCP Job menu original maximum of 4 digits. A Warning message recorded as an Er now recorded as a Warning Print performance slows down when pr sent. A wrong tray is selected when a tray is command. The PS inputTrayMask / outputTrayMa The PJL JOB START/END command of When custom sized paper is used with AppleTalk print doesn't operate correct AppleTalk is enabled. Other changes: Added functions and changes to Click	was changed to display fror by the Event Log an rocessing PS jobs, whic specified with the PS in sk command doesn't fu doesn't function correctl a PCL job, a wrong tray dy when the TCP/IP in the	5 digits from the ad Error Log, are h are continuously aputTrayMask nction correctly. y is selected. he VPT for		

Model: EMP156		Date: 12-Jun-06	No.: RG155014f
Version	Sympton	n Corrected	
	Added Blank pages uncounted feature Added setting menu for double counting A3 Added menu for display counter / hide counter Deletion of Click Charge Reset menu Added Faceup Always function IPS InfoPrint compatible MIB (Added "MIB Function" menu for MIB switching) Added Config menu for C.P.Bourg BBF2005 Additions to the maintenance part menu in the OCP/WEB Brake Pad Regist Drive Roller Assy Heater Lamp Assy Timing Driven Roller Feed Roller PHS Assy Earth Spring Assy Sleeve Bearing		
em300	Symptom Corrected: PS limitcheck error occurs when the pr Log file error occurs when the "reload" Task Exit error occurs when the "samp JavaScript error occurs when LPR/LPD Unable to set spooling when Raw Sock disabled. Other changes: Supports IPDS.	inter is operated around button on the web utiliti le" button is touched. of TCP/IP is disabled. at is enabled and LPR/	l-the-clock. es is clicked. LPD of TCP/IP is
em204	Symptom Corrected:       The machine uses the wrong output tray when the operator specifies the tray using the "PS:setOutputTray" command.         A PS error occurs if a blank field is specified for /MediaType or /MediaColor.         A TaskExit error occurs if the printer recieves a specific PCL job created by an M driver.         The user can access the service menu without a password.         Other changes:         Supports AppleTalk protocol for AUX network I/F.         Added the "PS Wait Timeout" menu to the OCP.         Added a counter to the account log file for the number of copy sets.         The printer can recieve 4GB or more when Spooling is disabled.         Deleted the "EMP156" logo from the Web menu.		
em202	Symptom Corrected Preprinted paper printed reverse side v French language message displayed m Other changes: Support of the "Transit Pass Unit". Click Charge Counter added. (Countin Removal of (mistaken) display of A4 T	vhen stacked in Sample halfunction on the OCP. g each page regardless ab LEF and Letter tab L	Tray. of paper size.) EF on the OCP.



Model: EMP156		Date: 12-Jun-06	No.: RG155014f		
Version	Symptom Corrected				
em201	Part of the printed image is shifted in the direction of the scan.				
em200	The PostScript version displayed is incorrect.				
	Incorrect: 3011 Correct: 3015 Some minor symptoms with PostScript printing were corrected.				
	Other changes:				
om114	Supports new RoHS compliant hardware.				
em 14	m114 1. German and French languages were added. Japanese language was de				
	$(\mathcal{T})$ Considers the Media Color when p	processing Media Match	ning.		
	(イ) "Printer - Paper Source - Paper Co	olor" menu was added t	o the OCP.		
	(1) "Paper Color" menu was added to System - Virtual Printer - each VP	T - PostScript" of the W	ay" and "Manage -		
	$(\pm)$ String of the Color was added to "	prtInputMediaColor" of t	he MIB.		
	(才) "ocpCustomMediaColor" was adde	ed in the MIB.			
	1. Tracing Paper is supported as a Paper	Tvpe.			
	2. The "Accounting Slip Sheet" function w	as added.			
	<ul> <li>"Accounting Slip Sheet: Enable/Dis</li> <li>Sustant Vistual Printer and V/DT</li> </ul>	sable" option was added	to the "Manage -		
	(factory default: Disabled)	- General" menu of the	e web Utility		
	(				
	(a) The Image Shift function with PJL cor	mmands is supported.			
	(c) Letter and A4 can be selected with PostSc	CL and PJL. regardless	of sheet		
	orientation.				
	$(\mathcal{T})$ "Auto Feed Orientation" option was added to "Manage - System - G				
	- Options of the web officty.				
	1. The LPD Banner Page function was ad	ded.			
	(ア) "LPD Banner Page: Enable/Disabl	le" option was added to	: "Manage -		
	2. Improved the switching time between the	ne Standard Input Trav	and Additional		
	HĊF.				
	(ア) The "Printer - Paper Source - HCF	Tray Control" menu wa	as added to the		
	(イ)The "HCF Tray Control" Menu was	s added to "System - Tr	ay" in the Web		
	Utility.	, , , , , , ,	-		
	A timeout (time limit) was added for LF	PR, RawTCP and IPP.			
	$(\mathcal{T})$ The "configuration" report function was add	ded to the "Report" mer	u of the OCP for		
	user adjustable parameters.				
	(イ) The "Config Print" option was adde	ed to the "Service - Cor	figuration" menu of		
1. Added new Default Virtual Printer "lp" to port 9100.					
	2. Changed Default Virtual Printer "TEXT"	' to "text" for port 3100.			



Model: EMP156		Date: 12-Jun-06	No.: RG155014f
Version	Symptom Corrected		
	<ol> <li>Symptom Corrected</li> <li>Changed engine parts name "Cyclone Filter" to "Fine Filter" on the OCP / Web / MIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer functionality.</li> <li>Corrected the page image position for PostScript.</li> <li>Corrected the EC#04 error when using the HCF2 Upper Tray.</li> <li>Corrected the "2 on 4 off" test print pattern.</li> <li>Added the Engine FPGA version to the Status Page.</li> </ol>		
	11. Corrected the PJL USTATUS comman	d response.	

## Technical Bulletin

### Reissued: 31-Mar-09

Model: EMP156	Date: 12-Jun-06	No · RG155014g
	Date. 12 ball be	110

#### **RTB Reissue**

The items in bold italics have been added.
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Subject: Firmware Release History (Controller)			Prepared by: T.Tadokoro		
From: PPBG QA/	Service Planning Deplt.				
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	<ul> <li>Part informa</li> <li>Electrical</li> <li>Transmit/rec</li> </ul>	tion eive	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>	

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em304b	G1552684I	March 2009 production
em303c	G1552684H	Oct 2008 production
em302	G1552684G	April 2008 production
em301	G1552684F	March 2008 production
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer

Confirm revision of current controller software and select the pertinent file from three files and install it.

Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware .

Model: EM	IP156	Date: 12-Jun-06	No.: RG155014g						
Version	Sympton	n Corrected							
em304b	Other changes:								
	1. INICK Was supported.								
	2. IPDS Trace function has been added 3. Changed the behavior of Auto cases	l. Ide for the Container	Stacker with IPDS						
	as follows:								
	Before change: Changes the output	stacker when other l	nigher priority						
	stackers are available.								
	After change: Changes the output s	tacker only if the curi	ent stacker is full.						
	same as PostScript/PCL.	lion for Container Sta							
	5. Timer had been disabled for Auto or	line function during	connection with						
	IPDS; correction has made the timer	function available.							
em303c	Symptom Corrected:								
	Change of FontCache value of PostSc	ript from 60% to 10% c	of PS memory due						
	to fix performance problem.								
	"asn error" is occurred on back channe	el during MIB access.							
	"Appletalk multicast registration" error	is occurred during boot	ting up the printer.						
	IPDS: Stop print when change data stream between IPDS and PostScript.								
	IPDS: Incorrect print when stop and/or recover print is executed by intoPrint Manager								
	<ul> <li>There are some typo on OCP and Web menus of German/French.</li> </ul>								
	Other changes:								
	Change the behavior of Bestfit function for	PostScript as follows.							
	- Change priority of media selection.								
	Before change: Media l ype > MediaColor	> MediaWeight > Lead	lingEdge >						
	After change : PageSize > LeadingEdge	> MediaType > M	iaColor >						
	MediaWeight								
	Oberne nelles for misses ( )								
	- Change policy for mismatch except /Pag	esize. ur policy							
	After change: Ignore.	a policy.							
em302	Symptom Corrected:								
	The print performance decreases wher	256MB of memory is i	installed.						
	The EAN128 bar code is thinly printed.	on the OCD it is not on	aliad						
		on the OCP, it is not ap	plied.						
	Other changes:								
	Added following menu/function in order	to change the operatir	ng behavior, during						
	duplex print.								
	default value - Competible	lode-Standard/Comp	atible Factory						
	Standard · Adobe compliant duploy print	peration							
	Compatible · DDP-specific duplex print or	peration							
em301	Symptom Corrected								
0.11001	The page count in the OCP Job menu	was changed to display	/ 5 digits from the						

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Model: EN	IP156	Date: 12-Jun-06	No.: RG155014g			
Version	Sympton	n Corrected				
	<ul> <li>A Warning message recorded as an Error by the Event Log and Error Log, are now recorded as a Warning         Print performance slows down when processing PS jobs, which are continuously sent.         A wrong tray is selected when a tray is specified with the PS inputTrayMask command.         The PS inputTrayMask / outputTrayMask command doesn't function correctly.         The PJL JOB START/END command doesn't function correctly.         When custom sized paper is used with a PCL job, a wrong tray is selected.         AppleTalk print doesn't operate correctly when the TCP/IP in the VPT for AppleTalk is enabled.     </li> </ul>					
	Other changes: Added functions and changes to Click Charge Counter Added Blank pages uncounted feature Added setting menu for double counting A3 Added menu for display counter / hide counter Deletion of Click Charge Reset menu Added Faceup Always function IPS InfoPrint compatible MIB (Added "MIB Function" menu for MIB switching) Added Config menu for C.P.Bourg BBF2005 Additions to the maintenance part menu in the OCP/WEB Brake Pad Regist Drive Roller Assy Heater Lamp Assy Timing Driven Roller Feed Roller PHS Assy Earth Spring Assy					
em300	Symptom Corrected: PS limitcheck error occurs when the pr Log file error occurs when the "reload" Task Exit error occurs when the "samp JavaScript error occurs when LPR/LPD Unable to set spooling when Raw Sock disabled. Other changes: Supports IPDS.	inter is operated around button on the web utiliti le" button is touched. o of TCP/IP is disabled. at is enabled and LPR/	-the-clock. es is clicked. LPD of TCP/IP is			
em204	Symptom Corrected: The machine uses the wrong output tra using the "PS:setOutputTray" command. A PS error occurs if a blank field is spe A TaskExit error occurs if the printer re driver. The user can access the service menu Other changes:	ay when the operator sp cified for /MediaType or cieves a specific PCL jo without a password.	ecifies the tray /MediaColor. b created by an M			

Model: EM	/P156	Date: 12-Jun-06	No.: RG155014g				
Version	Sympton	n Corrected					
	Added PS 85lpi half-tone. Added the "PS Wait Timeout" menu to the OCP. Added a counter to the account log file for the number of copy sets. The printer can recieve 4GB or more when Spooling is disabled.						
	Deleted the "EMP156" logo from the W	eb menu.					
em202	Symptom Corrected Preprinted paper printed reverse side v French language message displayed m	vhen stacked in Sample nalfunction on the OCP.	Tray.				
	Other changes: Support of the "Transit Pass Unit". Click Charge Counter added. (Countin Removal of (mistaken) display of A4 T	g each page regardless ab LEF and Letter tab L	of paper size.) EF on the OCP.				
em201	Part of the printed image is shifted in the Note: This only happens on the RoHS	ne direction of the scan. compliant machine.					
em200	The PostScript version displayed is incorrect. Incorrect: 3011 Correct: 3015 Some minor symptoms with PostScript printing were corrected.						
	Other changes: Supports new RoHS compliant hardwa	re.					
em114	<ol> <li>German and French languages were a</li> <li>Paper Color function is supported with (ア) Considers the Media Color when p (イ) "Printer - Paper Source - Paper Color" menu was added to System - Virtual Printer - each VP (エ) String of the Color was added to " (オ) "ocpCustomMediaColor" was added</li> </ol>	added. Japanese langua PostScript. processing Media Match olor" menu was added t o "Manage - System - Tr T - PostScript" of the W prtInputMediaColor" of t ed in the MIB.	age was deleted. ning. o the OCP. ay" and "Manage - eb Utility. the MIB.				
	<ol> <li>Tracing Paper is supported as a Paper</li> <li>The "Accounting Slip Sheet" function w         <ul> <li>"Accounting Slip Sheet: Enable/Dis</li> <li>System - Virtual Printer - each VPT (factory default: Disabled).</li> </ul> </li> </ol>	Type. /as added. sable" option was addeo - General" menu of the	d to the "Manage - Web Utility				
	<ul> <li>(a) The Image Shift function with PJL conducts</li> <li>(b) TBCP mode is supported with PostSec</li> <li>(c) Letter and A4 can be selected with Portentation.</li> <li>(𝒴) "Auto Feed Orientation" option vortentation option vortentation.</li> </ul>	mmands is supported. cript. CL and PJL, regardless vas added to "Manage -	of sheet System - General				
	<ol> <li>The LPD Banner Page function was ad (<i>T</i>) "LPD Banner Page: Enable/Disab System - Virtual Printer" (factory d</li> <li>Improved the switching time between the</li> </ol>	lded. le" option was added to lefault: Disabled). he Standard Input Tray	: "Manage - and Additional				

Model: EN	Iodel: EMP156         Date: 12-Jun-06         No.: RG15501						
Version		Symptom Corrected					
	3. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10	<ul> <li>HCF.</li> <li>(𝔅) The "Printer - Paper Source - HCF OCP.</li> <li>(𝔅) The "HCF Tray Control" Menu was Utility.</li> <li>A timeout (time limit) was added for LF The configuration Report function was add user adjustable parameters.</li> <li>(𝔅) The "config Print" option was added the OCP for various engine param</li> <li>Added new Default Virtual Printer "Ip" to Changed Default Virtual Printer "TEXT" Changed engine parts name "Cyclone FMIB.</li> <li>Fixed various PCL/PostScript issues.</li> <li>Improved compatibility with HP printer f Corrected the page image position for FC Corrected the EC#04 error when using Corrected the Engine FPGA version to the Corrected the PJL USTATUS command</li> </ul>	F Tray Control" menu w s added to "System - Tr PR, RawTCP and IPP. added. ded to the "Report" mer ed to the "Service - Cor eters. o port 9100. ' to "text" for port 3100. Filter" to "Fine Filter" or functionality. PostScript. the HCF2 Upper Tray. ern. Status Page. er of OPC sheets used of d response.	as added to the ray" in the Web nu of the OCP for nfiguration" menu of n the OCP / Web / (10→ <b>11</b> ).			



## Technical Bulletin

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Model: EMP156

Date: 13-May-09

No.: RG155031

Subject: STAY: Parts catalog correction			Prepared by: T. Tadokoro		
From: PPBG QA/	Service Planning Dept.				
Classification:	Troubleshooting	Part informa	tion	Action required	
	Mechanical	Electrical		Service manual revision	
	Paper path	Transmit/rec	eive	Retrofit information	
	Other ( )				

Incorrect P/N	Correct P/N	Description	Q'ty	Page	Index	Note
G1551553	G1555553	REGIST PRESSURE ROLLER	1	52	157	

Change/Reason: The P/N in the Parts Catalog was corrected.

### Technical Bulletin

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Model: EMP156

Date:23-Jul-09

No.: RG155032

Subject: STAY: PHOTO INTERRUPTER			Prepared by: T. Tadokoro		
From: PPBG QA/	Service Planning Dept.				
Classification:	<ul> <li>Troubleshooting</li> <li>Mechanical</li> <li>Paper path</li> <li>Other ()</li> </ul>	Part informa	tion	<ul> <li>Action required</li> <li>Service manual revision</li> <li>Retrofit information</li> </ul>	

Old part	New part	Description	Q'ty	Int	Page	Index	Note
number	number						
G1555140	G1552870	PHOTO INTERRUPTER	1	X/O	58	8	
G1555140	-	PHOTO INTERRUPTER	5→4	-	-	-	

Change: The shape of the actuator has been changed.

**Reason:** To prevent punched holes on the sheets from getting caught by the tip of the actuator.

Before Change

After Change

sensor lever

## Technical Bulletin

### Reissued: 30-Jul-09

Model: EMP156	Date: 12-Jun-06	No.: RG155014h

#### **RTB Reissue**

The items in bold italics have been added.					
Subject: Firmware Release History (Controller)		Prepared by: T.Tadokoro			
From: PPBG QA	Service Planning Deplt.				
Classification:	Troubleshooting	Part informa	tion	Action required	
	🗌 Mechanical	Electrical		Service manual revision	
	Paper path	Transmit/rec	eive	Retrofit information	
	⊠ Other ( )				

This RTB contains the software release history for the Controller.

Version	Program No.	Effective Date
em305	G1552684J	June 2009 production
em304b	G1552684I	March 2009 production
em303c	G1552684H	Oct 2008 production
em302	G1552684G	April 2008 production
em301	G1552684F	March 2008 production
em300	G1552684E	November 2007 Production
em204	G1552684D	June 2007 production
em202	G1552684C	October 2006 Production
em201	G1552684B	July 2006 Production
em200	G1552684A	April 2006 Production
em114	G1552684	December 2005 Production

#### **IMPORTANT:**

To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Engine Program No. G1552685E or newer

Confirm revision of current controller software and select the pertinent file from three files and install it.

Please confirm "Upgrade Instruction for EMP156 Controller Software" about installation procedure for attached firmware .

Technical Bulletin

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### Reissued: 30-Jul-09

Model: EMP156

Date: 12-Jun-06

No.: RG155014h

Version	Symptom Corrected
em305	Other change:
	<ul> <li>Timing for the machine to switch to Energy Save Mode has been changed from 15 minutes to 3 minutes to support the new Energy Star Program.</li> </ul>
em304b	Other changes:
	1. MICR was supported.
	<ol> <li>IPDS Trace function has been added.</li> <li>Changed the behavior of Auto especide for Container Stocker on IPDS as follows:</li> </ol>
	Before change: changes output stacker when other higher priority stackers are
	Available. After change: changes output stacker only if paper is full in the current stacker
	<ol> <li>Supported priority output tray selection for Container Stacker on IPDS is same with PostScript/PCL.</li> </ol>
	<ol> <li>Timer had been disabled for Auto online function during connection with IPDS; correction has made the timer function available.</li> </ol>
em303c	Symptom Corrected:
	<ul> <li>Change of FontCache value of PostScript from 60% to 10% of PS memory due to fix performance problem.</li> </ul>
	<ul> <li>"asn error" is occurred on back channel during MIB access.</li> </ul>
	<ul> <li>"Appletalk multicast registration" error is occurred during booting up the printer.</li> </ul>
	<ul> <li>IPDS: Stop print when change data stream between IPDS and PostScript.</li> </ul>
	<ul> <li>IPDS: Incorrect print when stop and/or recover print is executed by InfoPrint Manager.</li> </ul>
	There are some typo on OCP and Web menus of German/French.
	Other changes:
	Change the behavior of Bestfit function for PostScript as follows. - Change priority of media selection.
	Before change: MediaType > MediaColor > MediaWeight > LeadingEdge > PageSize
	After change : PageSize > LeadingEdge > MediaType > MediaColor > MediaWeight
	- Change policy for mismatch except /PageSize
	Before change: Substituted according to our policy
	After change: lanore.
em302	Symptom Corrected:
	The print performance decreases when 256MB of memory is installed.
	The EAN128 bar code is thinly printed.
	Even if 85LPI PS half tone is selected on the OCP, it is not applied.
	Other changes:
	Added following menu/function in order to change the operating behavior, during
	duplex print.
	OCP : Printer-PostScript-Duplex Print Mode-Standard/Compatible Factory
	default value : Compatible

### Reissued: 30-Jul-09

Model: EMP156         Date: 12-Jun-06         No.: RG155014				
Version	Sympton	1 Corrected		
	Standard : Adobe-compliant duplex print o	operation		
om201	Compatible : DDP-specific duplex print op	eration		
emsor	The page count in the OCP Job menu	was changed to displa	y 5 digits from the	
	original maximum of 4 digits.	<b>5</b> 1.	, ,	
	A Warning message recorded as an Er	ror by the Event Log a	nd Error Log, are	
	Print performance slows down when pr	ocessing PS jobs, whi	ch are continuously	
	sent.	specified with the PS i	innutTravMask	
	command.			
	The PS inputTrayMask / outputTrayMa	sk command doesn't fu	unction correctly.	
	When custom sized paper is used with	a PCL job a wrong tra	ily. av is selected	
	AppleTalk print doesn't operate correct	ly when the TCP/IP in	the VPT for	
	AppleTalk is enabled.			
	Other changes:			
	Added functions and changes to Click Charge Counter			
	Added Blank pages uncounted feature Added setting menu for double counting A3			
	Added menu for display counter / hide counter			
	Deletion of Click Charge Reset menu Added Faceup Always function			
	IPS InfoPrint compatible MIB (Added "I	VIB Function" menu for	r MIB switching)	
	Added Config menu for C.P.Bourg BBF	2005	07	
	Additions to the maintenance part men Brake Pad	u in the OCP/WEB		
	Regist Drive Roller Assy			
	Heater Lamp Assy			
	Feed Roller PHS Assy			
	Earth Spring Assy			
am200	Sleeve Bearing			
em300	PS limitcheck error occurs when the pr	inter is operated aroun	ld-the-clock.	
	Log file error occurs when the "reload"	button on the web utili	ties is clicked.	
	Task Exit error occurs when the "samp	le" button is touched.		
	Unable to set spooling when Raw Sock	et is enabled and LPR	{/LPD of TCP/IP is	
	disabled.			
	Other changes:			
	Supports IPDS.			
em204	Symptom Corrected:	 		
	The machine uses the wrong output tra	iy when the operator s	pecifies the tray	
	A PS error occurs if a blank field is spe	cified for /MediaType c	or /MediaColor.	
	A TaskExit error occurs if the printer re	cieves a specific PCL	job created by an M	

### Reissued: 30-Jul-09

Model: EN	Model: EMP156 Date: 12-Jun-06 No.: RG15501			
Version	Sympton	n Corrected		
	driver. The user can access the service menu	without a password.		
	Other changes: Supports AppleTalk protocol for AUX n Added PS 85lpi half-tone. Added the "PS Wait Timeout" menu to Added a counter to the account log file The printer can recieve 4GB or more w	etwork I/F. the OCP. for the number of copy hen Spooling is disable	sets. d.	
	Deleted the "EMP156" logo from the W	eb menu.		
em202	Symptom Corrected Preprinted paper printed reverse side when stacked in Sample Tray. French language message displayed malfunction on the OCP.			
	Other changes:			
	Support of the "Transit Pass Unit".			
	Removal of (mistaken) display of A4 T	g each page regardless ab LEF and Letter tab L	EF on the OCP.	
em201	Part of the printed image is shifted in the direction of the scan.     Note: This only happens on the RoHS compliant machine.			
em200	The PostScript version displayed is incorrect.     Incorrect: 3011     Correct: 3015			
	Some minor symptoms with PostScrip	t printing were corrected	1.	
	Other changes:			
	Supports new RoHS compliant hardwa	are.		
em114	<ol> <li>German and French languages were a</li> <li>Paper Color function is supported with (ア) Considers the Media Color when p (イ) "Printer - Paper Source - Paper Co (ウ) "Paper Color" menu was added to System - Virtual Printer - each VP (エ) String of the Color was added to " (オ) "ocpCustomMediaColor" was added</li> </ol>	Added. Japanese langua PostScript. processing Media Match olor" menu was added t "Manage - System - Tr T - PostScript" of the W prtInputMediaColor" of t ed in the MIB.	age was deleted. hing. o the OCP. ay" and "Manage - eb Utility. the MIB.	
	<ol> <li>Tracing Paper is supported as a Paper</li> <li>The "Accounting Slip Sheet" function w         <ul> <li>"Accounting Slip Sheet: Enable/Dis</li> <li>System - Virtual Printer - each VPT (factory default: Disabled).</li> </ul> </li> </ol>	Type. vas added. sable" option was addeo 7 - General" menu of the	d to the "Manage - Web Utility	
	<ul> <li>(a) The Image Shift function with PJL conducts</li> <li>(b) TBCP mode is supported with PostSec</li> <li>(c) Letter and A4 can be selected with Portentation.</li> <li>(𝔅) "Auto Feed Orientation" option variables</li> </ul>	mmands is supported. cript. CL and PJL, regardless vas added to "Manage -	of sheet System - General	

### Reissued: 30-Jul-09

Model: EN	EMP156 Date: 12-Jun-06 No.: RG155014h			No.: RG155014h
Version	Symptom Corrected			
	1.	The LPD Banner Page function was ad (𝒜) "LPD Banner Page: Enable/Disabl System - Virtual Printer" (factory d	ded. e" option was added to efault: Disabled).	: "Manage -
	2.	<ol> <li>Improved the switching time between the Standard Input Tray and Additional HCF.</li> </ol>		
	3.	<ul> <li>(<i>T</i>) The "Printer - Paper Source - HCF OCP.</li> <li>(<i>d</i>) The "HCF Tray Control" Menu was Utility.</li> <li>A timeout (time limit) was added for LF The configuration Report function was add user adjustable parameters.</li> <li>(<i>d</i>) The "Config Print" option was added the OCP for various engine parameters.</li> </ul>	Tray Control" menu was added to "System - Tr PR, RawTCP and IPP. added. ded to the "Report" mer ed to the "Service - Cor eters.	as added to the ay" in the Web nu of the OCP for nfiguration" menu of
	1. 2. 3. 4.	Added new Default Virtual Printer "lp" to Changed Default Virtual Printer "TEXT" Changed engine parts name "Cyclone I MIB. Fixed various PCL/PostScript issues.	o port 9100. to "text" for port 3100. Filter" to "Fine Filter" or	the OCP / Web /
	5. 6. 7. 8. 9. 10 11	Improved compatibility with HP printer f Corrected the page image position for F Corrected the EC#04 error when using Corrected the "2 on 4 off" test print patt Added the Engine FPGA version to the Corrected a display error for the number Corrected the PJL USTATUS command	unctionality. PostScript. the HCF2 Upper Tray. ern. Status Page. er of OPC sheets used ( d response.	(10 <b>→ 11</b> ).

## Technical Bulletin

PAGE: 1/1

Model: EMP156

Date:31-Aug-09

No.: RG155033

From: PPMC Service Planning Department 1G	
Classification: Troubleshooting Part Classification: Troubleshooting Part Dechanical Elec Paper path Tran Other ()	informationAction requiredctricalService manual revisionnsmit/receiveRetrofit information

Old part	New part	Description	Q'ty	Int	Page	Index	Note
number	number						
G1552315	G1552866	Front Cap Holder Assy	1	0/0	80	10	
G1552316	G1552867	FB Front Cap Sub Assy	1	0/0	80	27	

Change: Material for the two parts has been changed from aluminum to ABS.

1. Front Cap Holder Assy



2. FB Front Cap Sub Assy



### Technical Bulletin

Reissued: 28-Sep-09

Date: 21-June-06

No.: RG155006g

#### **RTB Reissue**

Model: EMP156

The items in bo	Id italics have been adde	d.		
Subject: Firmware Release History (Engine)		Prepared by: T.Tadokoro		
From: 2nd Tech §	Support Sec. Service Support I	Dept.		
Classification:	Troubleshooting	Part information	tion	Action required
	Mechanical	Electrical		Service manual revision
	Paper path	Transmit/rec	eive	Retrofit information
	Product Safety	🛛 Other (	)	

This RTB contains the software release history for the Engine.

Version	Program No.	Effective Date
0	G1552685J	April 2009 production
Ν	G1552685I	December 2007 production
М	G1552685H	September 2007production
L	G1552685G	May 2007 production
К	G1552685F	January 2007 production
J	G1552685E	October 2006 production
I	G1552685D	May 2006 Production
Н	G1552685C	April 2006 Production
G	G1552685B	January 2006 Production
E	G1552685	August 2005 Production

#### IMPORTANT:

- To apply the corrections and new features of the new firmware, make sure to update the following firmware together as a set: Controller Program No. G1552684C or newer
- After confirming the revision of the current controller software, select the pertinent file from the three available and perform a software update.
   Please confirm "Upgrade Instruction for EMP156 Engine Microcode" for the correct installation procedures.

Version	Symptom Corrected
0	Symptoms Corrected:
	1. E453 (ST1 Exit Signal Error) occurs on the last print fed out after detecting
	"paper empty" under two conditions of intermittent duplex printing and no continuous "Pick" command from the controller.
	2. E124 (HCF Exit Sensor Jam Error) occurs and the sheet is fed out with the data of the S-side (read before the error occurrence) printed onto the D-side under two conditions of duplexing in "Prior Pick Mode" and switching the hopper

Model: EM	IP156		Date: 21-June-06	No.: RG155006g					
Version		Symptom	Corrected						
	<ul> <li>between HCF and mainframe.</li> <li>To avoid misaligned printing in horizontal position, program has been modified to alert a CCD Jam (Build in: E115,HCF:E11E) to stop the print operation if the paper transport position is not within the standard range of MIN (0.96mm)~MAX (3.136mm).</li> <li>Other changes:</li> <li>To avoid false detection of E057 (Air System Open Error), spec for air detection has been changed from "10msec (10msec×1)" to "100msec (10msec×10)".</li> </ul>								
	Engine Microcode Revisions:								
	Micro Code R	Revision							
	Print Engine - Master 0	)F							
	Print Engine - Slave 0 Print Engine - FPGA 0	'E )8(The same	as Rev. H)						
	AHP (HCF) 0	C							
	Stacker 1 0	E(The same	e as Rev. N)						
N	Other changes:								
	1. BBF2005 control function w	vas added.							
	This function will be availab	ole from cont	roller firmware Rev.em	301.					
	2. The following parts have be	een added to	the PM counter:						
	• Brake Pau								
	Microcode		Revision						
	Print Engine - Master		0E						
	Print Engine - Slave		0D (The same a	as Rev.M)					
	Print Engine - FPGA		08 (The same a	as Rev.H)					
	AHP (HCF)		0B (The same a	as Rev.M)					
	Stacker 1 (Container St	tacker 1)	0E						
	Stacker 2 (Container St	tacker 2)	0E						
	Regist Drive Roller Ass	embly							
	Timing Driven Roller	<b>,</b>							
	Heater Lamp Assembly	(							
	Earth Spring Assembly     Sloove Rearing	(5)							
	Feed Roller PHS (L) As	ssembly							
		,							
	Engine Microcode Revisions:								

Model: EM	MP156 Date: 21-June-06 No.: RG155006g							
Version	Symptom Corrected							
М	<ol> <li>Other changes:</li> <li>Switching tray times were significantly reduced (prior pick-mode). Please refer to RTB: RG155024 for details.</li> <li>Heater control was modified.</li> <li>To prevent images blurring on 14"x 18" size paper, a function has been added to enable heat roller rotation speeds to be adjusted (1,500rpm&gt;1,490rpm).</li> </ol>							
	Engine Microcode Revisions:							
	Microcode Revision							
	Print Engine - Master	0D						
	Print Engine - Slave	0D						
	Print Engine - FPGA	08 (The same a	as Rev.H)					
	AHP (HCF)	0B						
	Stacker 1 (Container Stacker 1)	0D						
	Stacker 2 (Container Stacker 2)	0D						
L	<ol> <li>Paper transport control was changed so that there is no space in between sheets of paper after switching from duplex to simplex printing. This minimizes the drop in print speed when switching from duplex to simplex.</li> <li>Note: There is one exception: The space between sheets is about 2 sheets when switching from Tray 1/2 duplex to the HCF2 lower tray simplex.</li> </ol>							
	Engine Microcode Revisions:							
	Microcode	Revision						
	Print Engine - Master	0B						
	Print Engine - Slave	0B						
	Print Engine - FPGA	08 (The same	as Rev.H)					
	AHP (HCF)	09 (The same	as Rev.K)					
	Stacker 1 (Container Stacker 1)	0B						
	Stacker 2 (Container Stacker 2)	08						
К	<ol> <li>Other changes:</li> <li>New settings added: The reverse rotation angle for the registration roller can now be controlled separately for simplex and duplex printing. This is to minimize skew.</li> <li>The heater control parameters were optimized for when switching between thin and thick paper. This will help ensure the proper print speed.</li> <li>The pick belt turns in reverse about 25mm when the exit trav is lowered after</li> </ol>							

## Technical Bulletin

Model: EN	IP156	Date: 21-June-06	No.: RG155006g					
Version	Symptom Corrected							
	printing. This is to ensure that the paper does not get caught between the pic							
	Engine Microcode Revisions:							
	Microcode	Revision						
	Print Engine - Master							
	Print Engine - Slave	0A						
	Print Engine - FPGA	08 (The same	as Rev.H)					
	AHP (HCF)	09						
	Stacker 1 (Container Stacker 1)	0A						
	Stacker 2 (Container Stacker 2)	0A						
J	Other changes:							
	1. Support of the Transit Pass offit .							
	Engine Microcode Revisions:							
	Microcode	Revision						
	Print Engine - Master	09						
	Print Engine - Slave	09						
	Print Engine - FPGA	08 (The same	as Rev.H)					
	AHP (HCF)	08 (The same	as Rev.H)					
	Stacker 1 (Container Stacker 1)	09						
	Stacker 2 (Container Stacker 2)	09						
	Other changes:							
	Heater control parameters were optimized	to prevent unnecessary	v detections of the					
	sensor error.		,					
	Engine Microcode Revisions:							
	Microcode	Revision						
	Print Engine - Master	08						
	Print Engine - Slave	08						
	Print Engine - FPGA	08 (The same	as Rev.H)					

Version         Symptom Corrected           Stacker 1 (Container Stacker 1)         08           Stacker 2 (Container Stacker 2)         08           H         EC#09 (Print Timeout Error)           E312, E313 misdetection.         E275 (OC HARD ERROR) misdetection.           The image density sometimes decreases in Very Thick mode.         Dirty background.           Other Changes         The detection conditions for E072/E073 were changed to prevent unnecessat occurrences.           Toner density control was improved.         The speed of the cleaner motor was increased to improve cleaning performate.           The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).         Engine Microcode Revisions:           Microcode         Revision         Print Engine - Master         07           Print Engine - Slave         07         07         07	006g						
Stacker 1 (Container Stacker 1)       08         Stacker 2 (Container Stacker 2)       08         H       EC#09 (Print Timeout Error)         E312, E313 misdetection.         E275 (OC HARD ERROR) misdetection.         The image density sometimes decreases in Very Thick mode.         Dirty background.         Other Changes         The detection conditions for E072/E073 were changed to prevent unnecess: occurrences.         Toner density control was improved.         The speed of the cleaner motor was increased to improve cleaning performa         The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).         Engine Microcode Revisions:         Microcode       Revision         Print Engine - Master       07         Print Engine - Slave       07							
Stacker 2 (Container Stacker 2)       08         H       EC#09 (Print Timeout Error)         E312, E313 misdetection.         E275 (OC HARD ERROR) misdetection.         The image density sometimes decreases in Very Thick mode.         Dirty background.         Other Changes         The detection conditions for E072/E073 were changed to prevent unnecess: occurrences.         Toner density control was improved.         The speed of the cleaner motor was increased to improve cleaning performa         The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).         Engine Microcode Revisions:         Microcode       Revision         Print Engine - Master       07         Print Engine - Slave       07							
H       • EC#09 (Print Timeout Error)         • E312, E313 misdetection.         • E275 (OC HARD ERROR) misdetection.         • The image density sometimes decreases in Very Thick mode.         • Dirty background.         Other Changes         • The detection conditions for E072/E073 were changed to prevent unnecessa occurrences.         • Toner density control was improved.         • The speed of the cleaner motor was increased to improve cleaning performa         • The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).         Engine Microcode Revisions:         Microcode       Revision         Print Engine - Master       07         Print Engine - Slave       07							
Other Changes         • The detection conditions for E072/E073 were changed to prevent unnecessation occurrences.         • Toner density control was improved.         • The speed of the cleaner motor was increased to improve cleaning performation.         • The PM counter for the discharge case assembly now counts the number of drum revolutions (not number of pages).         Engine Microcode Revisions:         Microcode       Revision         Print Engine - Master       07         Print Engine - Slave       07	<ul> <li>EC#09 (Print Timeout Error)</li> <li>E312, E313 misdetection.</li> <li>E275 (OC HARD ERROR) misdetection.</li> <li>The image density sometimes decreases in Very Thick mode.</li> <li>Dirty background.</li> </ul>						
MicrocodeRevisionPrint Engine - Master07Print Engine - Slave07	sary nance. of						
Print Engine - Master     07       Print Engine - Slave     07							
Print Engine - Slave 07							
Print Engine - FPGA 08							
Stacker 1 (Container Stacker 1) 07							
Stacker 2 (Container Stacker 2) 07							
G       • The image density decreases after 400KC developments are made of an oriwith high image coverage.         • EC#09 (print time-out error) occurs when the machine switches from the buil hopper to the optional hopper (AHP) during a print job.         Other Changes         • The ON timing for the heat roll strip valve was changed so that the paper caseparate from the heat roll easier (This minimizes E180).         • The laser power for Very Thick Mode was optimized (It is the same setting a Thick Mode).         Engine Microcode Revisions:         Microcode       Revision         Print Engine - Master       06         Print Engine - FPGA       07	riginal ıilt-in an as						

Model: EN	MP156 Date: 21-June-06 No.: RG155006					
Version	Symptom Corrected					
	Stacker 1 (Container Stacker 1)	06				
	Stacker 2 (Container Stacker 2)	06				
E	<ul> <li>The motor control was changed to re</li> <li>E113 (Input Station Feed Jam4), E11</li> <li>Other Changes: <ul> <li>Added Prior Pick Mode.</li> <li>Added "tracing paper" as a paperweig</li> <li>The amount of stack offset between j</li> <li>Added an Air Pressure Adjustment.</li> <li>Added an ST Stopper Adjustment (to</li> </ul> </li> </ul>	duce HCF feed jams. B (Input Station Feed ght. obs can now be adjust the driver test).	Jam12) ted for long paper.			



## Technical Bulletin

PAGE: 1/1

Model: EMP156

Date:13-Nov-09

No.: RG155034

Subject: STAY: Paper Guide In			Prepared by: T. Tadokoro		
From: PPBG Serv	vice Planning Dept.				
Classification:		☑ Part informa ☐ Electrical	ation Action required		
	Paper path Other ()	Transmit/rec	ceive   Retrofit information		

Old part	New part	Description	Q'ty	Int	Page	Index	Note
number	number						
G1551398	G1552717	Paper Guide In	1	X/O	56	128	

**Change:** The shape of the Paper Guide has been changed.

## Technical Bulletin

#### **PAGE: 1/1**

Model: EMP156 Da				ate: 18-Aug-11		No.: RG155035	
Subject: Parts Catalog Correction				Prepared by: J. Ohno			
From: PP Service Planning Department 1G							
Classification:	Troubleshooting	🛛 Part informati		tion	Action	n required	
	🗌 Mechanical	Electrical		Servio		ce manual revision	
	Paper path	Transmit/rec		ceive 🗌 Retro		rofit information	
	Product Safety	Other (		)	🗌 Tier 2		

# **Change:** Addition of a new service part in the Drum Unit Ass'y **Reason:** Service parts cost reduction

New Part Number	Description		Page	Index	Note
G1552865	PLATE:SUB-ASS'Y	1	72	68	

27.Drum Unit (G155)

