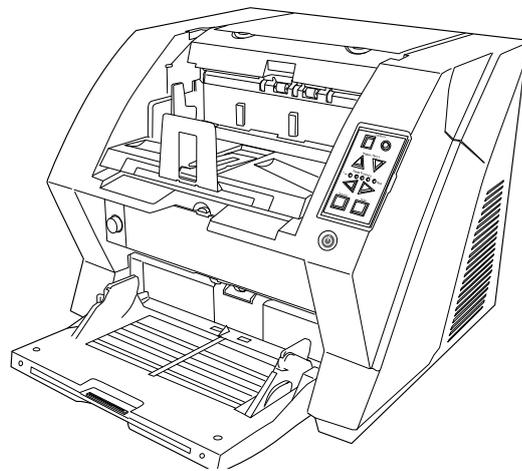


fi-5900C, Image Scanner
fi-590PRF, Pre-Imprinter
fi-590PRB, Post-Imprinter
Maintenance Manual



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D01	November 30, 2005	Draft 01 issued.
01	January 05, 2006	01 version released.
02	March 07, 2006	Section 7.4 added, etc. P221: The number of Diselectric brush changed.
03	March 15, 2006	Section 7.4 deleted.
04	May 10, 2006	P59: Cleaning sheet part number added. P95, 110: CGA board P99, 245, 288: Notes at Pinch roller 2 installation. P116: Test charts part numbers added. P125: Left Side cover installation procedure added. P135: Description deleted. P163: Reference section corrected. P235: Remarks on Brushes corrected.
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11	March 13, 2008	P67, 69, 70: Description added. P78-79: Device setting items in Software Operation Panel added. P80: Periodical maintenance parts added. P142: Notice added. P196-203: Replacement procedure for FEED-ROLLER-K added. P204-215: Replacement procedure for RUBBER-ROLLER-K added. P216, 217: Maintenance mode #9 added. P231-234: Feed roller counter added. P239-241: Maintenance mode #9 added. P246-248: Updating firmware added P250: Maintenance parts list revised. P278-280: New maintenance parts added (Sections 8.59, 8.60)
12	July 9, 2008	P216, 217, 221, 225, 228: Notes at Maintenance mode added.
13	January 30, 2009	P12, 19: A8 (and minimum size) width changed. P97, 323: Detail code 40 added. P66 "Note on cleaning the Feed Roller/Pinch Roller" added. P69: Description on Feed Roller added. P89, 244: Notes on Emulation mode added. P184: Reference step (Section) added. P216-218, 222, 226, 229-230, 232-235, 240: Notes on Maintenance Mode added. P251: Reference sections added.

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12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	2/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Preface

This manual provides the technical information such as maintenance, trouble shooting procedure and parts replacement procedure for Field Engineers on fi-5900C image scanner. Also included are the optional Pre-Imprinter (fi-590PRF) and Post-Imprinter (fi-590PRB).

For information that is not contained in this manual, refer to the following manuals:

Item	Manuals	P/N *
1	fi-5900C Getting Started	P3PC-1422-xxEN
2	fi-5900C Operator's Guide	P3PC-1432-xxEN
3	fi-590PRF Operator's Guide	P3PC-1442-xxEN
4	fi-590PRB Operator's Guide	P3PC-1542-xxEN
5	Illustrated Parts Catalog	P4PA03450-B00X

* xx represents revision number of the manuals.

Convention

Special information, such as warnings, cautions, are indicated as follows:

WARNING

This indication alerts operators to an operation that, if not strictly observed, may result in severe injury or death.

CAUTION

This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.

NOTICE

This provides 'how-to' tips or suggestions to help you perform a procedure correctly.

General note:

Be careful not to power off the scanner while communicating with the host computer. In case that the scanner is accidentally powered off during communication with the host, follow the procedure below:

1. Power off the host computer.
2. Power on the scanner.
3. Power on the host computer.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	3/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

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Windows 95: Microsoft® Windows® 95 operating system.

Windows 98: Microsoft® Windows® 98 operating system.

Windows Me: Microsoft® Windows® Millennium Edition operating system.

Windows NT 4.0: Microsoft® Windows NT® Server operating system,
Microsoft® Windows NT® Workstation operating system.

Windows 2000: Microsoft® Windows® 2000 Professional operating system.

Windows XP: Microsoft® Windows® XP Professional operating system,
Microsoft® Windows® XP Home Edition operating system.

Where there is no distinction between the different versions of the above operating system, the general term “Windows” is used.

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13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	4/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada				APPR.	T.Anzai

Contents

Chapter 1 Overview	11
1.1 Scanner Overview	11
1.1.1 Features	11
1.1.2 Scanner Specification	12
1.1.3 Environmental Specification	14
1.1.4 Outer Dimensions.....	15
1.1.5 Appearance.....	16
1.1.6 Operator Panel.....	18
1.2 Document Specification	19
1.2.1 Document Size	19
1.2.2 Document Quality	20
1.2.3 Maximum Document Loading Capacity	21
1.2.4 Hole-punching Prohibited Areas	22
1.2.5 Multi feed Detection Conditions	23
1.2.6 Background Color Areas	24
1.2.7 Job Separation Sheet	25
1.2.8 Scanning Mixed Documents.....	26
1.2.9 Condition for De-skew and Automatic Document Size Detection (Automatic Cropping)	27
Chapter 2 Installation.....	28
2.1 Unpacking the Scanner.....	28
2.2 Installing the Scanner	29
2.2.1 For Safety Installation	29
2.2.2 Installation.....	29
Chapter 3 Operation and Daily Maintenance.....	32
3.1 Basic Operation	32
3.1.1 Power ON/OFF	32
3.1.2 Opening or Closing the Hopper.....	33
3.1.3 Opening and Closing ADF	35
3.1.4 Opening and Closing Top Cover.....	36
3.1.5 Setting the Hopper Height.....	37
3.1.6 Loading Documents on the Hopper.....	38
3.1.7 Setting up the Stacker.....	41
3.1.8 Using the Document Smoother	44
3.1.9 Adjusting the Paper Thickness	45
3.1.10 Scanning Documents.....	47
3.1.11 Starting Scanning with Button.....	47
3.1.12 Feeding Documents Manually.....	48
3.1.13 How to use the Scanner Driver.....	52
3.1.14 Before Using Scan / Send to Button	53
3.1.15 Resuming from Power Saving Mode	54
3.1.16 Scanning Documents with Different Widths.....	55
3.2 Cleaning	57
3.2.1 Cleaning area and Cleaning frequency	57
3.2.2 Cleaning the Pad.....	58
3.2.3 Cleaning the Rollers (with the cleaning sheet).....	59
3.2.4 Cleaning the Rollers (with a lint-free cloth).....	61
3.2.5 Cleaning the Transport path and the sensors	64
3.2.6 Cleaning the Feed Rollers and Pinch Rollers	66
3.3 Replacing Consumables	67
3.3.1 Consumables and Replacement Cycle	67
3.3.2 How to check and reset the Consumables Counter	68
3.3.3 Replacing the Pad	71

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	5/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

3.3.4	Replacing the Pick Roller	72
3.3.5	Replacing the Separator Rollers.....	73
3.3.6	Replacing the Brake Roller.....	75
3.4	Scanner Settings	77
3.4.1	Software Operation Panel.....	77
3.4.2	Opening the Software Operation Panel	77
3.4.3	Settings.....	78
3.5	Periodical Replacement Parts	80

Chapter 4 Scanner Operation Description..... 81

4.1	ADF Unit.....	81
4.2	Reading Station	87
4.3	Controller	88
4.4	Cable Connection Diagram	90
4.5	Diagram of Power Supply System	93

Chapter 5 Troubleshooting 95

5.1	Function Number Display Sequence at Power-on.....	95
5.2	Temporary Errors and Alarms.....	96
5.2.1	Temporary Errors	96
5.2.2	Alarms	96
5.2.3	Detail Code.....	96
5.3	Troubleshooting	97
5.3.1.1	Scanner does not Turn ON (No display on the operator Panel)	98
5.3.1.2	Power button on Operator Panel does not Function. Only the Main Power Switch at Rear of the Scanner Turns ON/OFF the Scanner.....	98
5.3.2	Scanning Does not Start	98
5.3.3	Scanned Image is Distorted.....	99
5.3.4	Resolution or Gradation on Scanned Image is Unsatisfactory	99
5.3.5	Too Much Jitter on Scanned Image.....	100
5.3.6	Scanned Image is Not Aligned Properly	100
5.3.7	Magnification of Scanned Image is Incorrect when Scanning from the ADF.....	101
5.3.8	Vertical Streaks Appear in the Scanned Image	102
5.3.9	When White Level of Scanned Image is not proper.....	103
5.3.10	False “Hopper Empty” Error	103
5.3.11	“U1:Frequent Document Jam Error” (Detail code: 31,34,35,3a,3b,3c,3d,3e,50,51,52,53,54,5a,5b,5c).....	103
5.3.12	“U2: Frequent Multi feed Error” (Detail code: 55, 56)	105
5.3.13	False “ADF/Imprinter Cover Open” Error (Detail code: 4a)	105
5.3.14	“U6: No Print cartridge” (with the Imprinter installed) (Detail code: b4, ba).....	106
5.3.15	“U8 ADF Setup Error” (Detail code: 01, 02, 03, 04, 05, 06, 61, 64, 65).....	106
5.3.16	“E0: Hopper Overrun or Stacker Overrun Alarm” (Detail code: c0, c1).....	108
5.3.17	“E2 or E3: Optical Alarm” (Detail code:72, 73, 74, 75)	109
5.3.18	“E4: Motor Fuse Blown” (Detail code: 80, 81, 82, 88, 89, 8a)	110
5.3.19	“E5: Lamp Fuse Blown” (Detail code: 84)	112
5.3.20	“E6: Operator Panel Alarm”.....	113
5.3.21	“E7: EEPROM Alarm” (Detail code: d2).....	113
5.3.22	“E8: SCSI Fuse Blown”	113
5.3.23	“E9: Memory Alarm” (Detail code: e4)	113
5.3.24	“EA: Imprinter Alarm”(with the Imprinter installed) (Detail code: b2,b3,b5,b6,b8,b9,bb,bc,be,bf)	114
5.3.25	“Ec: RAM Alarm” (Detail code: e5, e6)	114
5.3.26	“Ed: SPC Alarm”	114
5.3.27	“EF: Background Switch Alarm” (Detail code: c2, c3).....	115
5.3.28	“E11: Fan Alarm” (Detail code: ec)	115
5.3.29	“E12: Heater Alarm” (Detail code: 92, 93)	116
5.3.30	“E15: Extended Memory Alarm” (Detail code: ee)	116
5.3.31	“E16: Option Board Alarm” (Detail code: ed)	116
5.3.32	“E17: Imprinter Fuse Blown” (with the Imprinter installed) (Detail code: b1).....	117

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	6/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.33	“E18: Sensor Alarm” (Detail code: 11, 12, 13, 14, 15, 17, 1b)	117
5.3.34	“E19: LSI Alarm” (Detail code: 86, e9,ea)	118
5.3.35	“E1A: Internal Scanner Communication Error” (Detail code: f0, f1, f4, fa, fb, fc).....	118
5.3.36	“F: Flash Memory Check Sum Error”	118
5.3.37	“Imprinter does not operate initially” (with the Imprinter installed)	118
5.3.38	“No imprinting / Imprinting Distortion” (with the Imprinter installed)	119
5.3.39	“Scanned Form is Dirty” (with the Imprinter installed)	119
5.3.40	“Imprinting Area is out of Paper” (with the Imprinter installed).....	119

Chapter 6 Maintenance Procedure 120

6.1	For Safety Operation	120
6.2	Periodic Maintenance	121
6.3	Cleaning the Maintenance Parts	121
6.3.1	Cleaning the CCD Unit.....	121
6.3.2	Cleaning inside of Background units, Lower/Upper, and Lamp Units (Base/Upper units)	123
6.4	Maintenance Tools	127
6.4.1	The Parts that should not be Disassembled.....	128
6.5	Replacing the Hopper Unit, Stopper, Stacker Unit and Stacker Slide 3 ASSY.....	129
6.5.1	How to remove/install the Hopper Unit.....	129
6.5.2	How to remove/install the Stopper	129
6.5.3	How to remove/install Stacker Unit.....	130
6.5.4	How to remove/install Stacker Slide 3 ASSY	133
6.6	Replacing the Covers	134
6.6.1	Front Cover	134
6.6.2	Top Cover	135
6.6.3	Left side Cover	135
6.6.4	Right side Cover	136
6.6.5	Rear Cover	136
6.7	Replacing the Panel PCA	137
6.8	Replacing the Brush 2	137
6.9	Replacing the Brush 1	138
6.9.1	Separator Roller	138
6.9.2	Brake Roller.....	138
6.10	Replacing the Power Supply and Fan ASSY	139
6.10.1	How to remove/install the Power Supply	139
6.10.2	How to remove/install the Fan ASSY.....	140
6.11	Replacing the Back Panel PCA.....	141
6.12	Replacing the Control PCA	142
6.13	Replacing the Gas Damper	144
6.13.1	Right side of the Scanner	144
6.13.2	Left side of the Scanner	144
6.14	Replacing the Diselectric Brush.....	145
6.15	Replacing Parts in the Base unit	146
6.15.1	How to remove/install the Brake Torque Unit.....	146
6.15.2	How to remove/install the Torque ASSY	149
6.15.3	How to remove/install the US PCA.....	150
6.15.4	How to remove/install the Sensor PCA	151
6.15.5	How to remove/install the Encoder PCA 1	152
6.15.6	How to remove/install the Background Unit, Lower	153
6.15.7	How to remove/install the BW Motor.....	154
6.15.8	How to remove/install the Lamp ASSY and Glass.....	155
6.15.9	How to remove/install the Inverter	157
6.15.10	How to remove/install the Feed Motor 2 and Belt Feed 2	158
6.15.11	How to remove/install Feed Motor 1 and Belt Feed 1	159
6.15.12	How to remove/install the Table Motor	160
6.15.13	How to remove/install the CCD Unit.....	161
6.16	Replacing the Parts in the Upper unit	162

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	7/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.16.1	How to remove/install the Lift ASSY.....	162
6.16.2	How to remove/install Table Motor.....	163
6.16.3	How to remove/install the Driver PCA.....	164
6.16.4	How to remove/install the Separation Motor and Belt Separation.....	165
6.16.5	How to remove/install Separator Unit.....	166
6.16.6	How to remove/install the Pick Solenoid.....	170
6.16.7	(Reference) How to remove/install Pick Roller Unit.....	171
6.16.8	How to remove/install the Encoder PCA 1.....	172
6.16.9	How to remove/install the Encoder PCA 2.....	173
6.16.10	How to remove/install the LF Motor and Belt Pick.....	174
6.16.11	How to remove/install the Background Unit, Upper.....	175
6.16.12	How to remove/install the BW Motor.....	176
6.16.13	How to remove/install the Lamp ASSY and Glass.....	177
6.16.14	How to remove/install the Inverter.....	178
6.16.15	How to remove/install the CCD Unit.....	179
6.16.16	How to remove/install Sensor LED ASSY and Sensor LED.....	180
6.16.17	How to remove/install the Sensor PTR ASSY and Sensor PTR.....	181
6.17	Replacing the US Sensors.....	182
6.17.1	Brake Torque Unit.....	182
6.17.2	Separator Unit.....	183
6.18	Replacing the Sensors.....	184
6.18.1	Stacker Bottom Sensor (Left of Lift ASSY).....	184
6.18.2	Hopper Bottom Sensor (Right of Hopper Channel).....	184
6.18.3	Hopper Empty Sensor (Back of Hopper Channel).....	185
6.18.4	Background Position Detection Sensor (Right of Background Unit, Lower).....	186
6.18.5	Background Position Detection Sensor (Right of Background Unit, Upper).....	186
6.18.6	Manual Feed Sensor, Pick Position Sensor (Separator Unit).....	187
6.19	Replacing the Sensor for SF3.....	188
6.19.1	Imprinter Top Sensor (Upper unit guide 1).....	188
6.19.2	Read Top Sensor (Background Unit, Lower).....	188
6.19.3	Reject Sensor (Base unit guide 2).....	189
6.20	Replacing the Sensor for JAM.....	190
6.20.1	Exit Sensor (Upper unit guide 4).....	190
6.20.2	JAM1 Sensor (Lower part of the Upper unit).....	191
6.20.3	JAM2 Sensor (Back side of the Upper unit).....	191
6.21	Replacing the Microswitch.....	192
6.21.1	ADF Cover Open Sensor (Left side of the Base unit).....	192
6.21.2	Imprinter Cover Open Sensor (Front of Upper unit).....	193
6.22	Replacing the Pad Base ASSY.....	194
6.23	(Reserved).....	195
6.24	(Reserved).....	195
6.25	(Reserved).....	195
6.26	(Reserved).....	195
6.27	Replacing the FEED-ROLLER-K.....	196
6.28	Replacing the RUBBER-ROLLER-K.....	204

Chapter 7 Adjustment/Settings..... 216

7.1	Maintenance Mode (Offline test).....	216
7.1.1	Activating Maintenance Mode and Mode Types.....	217
7.1.2	Maintenance Mode #1: Paper feeding test/Background changeover test/Sensor test.....	219
7.1.3	Maintenance Mode #2: Sub-scanning magnification adjustment.....	222
7.1.4	Maintenance Mode #3: Offset adjustment.....	226
7.1.5	Maintenance Mode #4: White level adjustment.....	229
7.1.6	Maintenance Mode #5: Consumables counter display and Reset.....	232
7.1.7	Maintenance Mode #6: Miscellaneous information display.....	234
7.1.8	Maintenance Mode #7: EEPROM data restore.....	236
7.1.9	Maintenance Mode #8: Ultrasonic sensor adjustment.....	237

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	8/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

7.1.10 Maintenance Mode #9: Sub-scanning magnification adjustment (When RUBBER-ROLLER-K is installed or ROLLER ASSY 1B—4B replaced).....	240
7.2 Saving EEPROM Data.....	243
7.3 Emulations.....	244
7.4 (Reserved).....	246
7.5 Updating firmware at RUBBER-ROLLER-K installation.....	247

Chapter 8 Maintenance Parts..... 250

8.1 CONTROL PCA	252
8.2 DRIVER PCA	252
8.3 PANEL PCA	253
8.4 POWER SUPPLY	253
8.5 FAN ASSY.....	254
8.6 CCD UNIT	254
8.7 LAMP ASSY.....	255
8.8 INVERTER	255
8.9 US SENSOR.....	256
8.10 SENSOR.....	256
8.11 SENSOR.....	257
8.12 SENSOR.....	257
8.13 MICROSWITCH.....	258
8.14 SENSOR PTR ASSY	258
8.15 SENSOR PTR	259
8.16 SENSOR LED ASSY.....	259
8.17 SENSOR LED.....	260
8.18 FEED MOTOR.....	260
8.19 BW MOTOR	261
8.20 TABLE MOTOR.....	261
8.21 SEPARATION MOTOR.....	262
8.22 BELT FEED 2	262
8.23 BELT FEED 1	263
8.24 BELT SEPARATION	263
8.25 BELT PICK.....	264
8.26 GAS DAMPER	264
8.27 DISELECTRIC BRUSH	265
8.28 BRAKE TORQUE UNIT.....	265
8.29 SENSOR PCA.....	266
8.30 US PCA	266
8.31 TORQUE ASSY.....	267
8.32 ENCODER PCA 1	267
8.33 SEPARATOR UNIT	268
8.34 (Reference) PICK ROLLER ASSY	268
8.35 PICK SOLENOID.....	269
8.36 (Reserved)	269
8.37 ENCODER PCA 2	270
8.38 LF MOTOR.....	270
8.39 BACKGROUND UNIT, LOWER	271
8.40 BACKGROUND UNIT, UPPER.....	271
8.41 GLASS ASSY	272
8.42 HOPPER UNIT	272
8.43 STACKER UNIT	273
8.44 STACKER SLIDE 3 ASSY	273
8.45 STOPPER.....	274
8.46 LIFT ASSY	274
8.47 SUPPORTER	275
8.48 BACK PANEL PCA	275
8.49 BRUSH 1.....	276

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	9/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.50 BRUSH 2.....	276
8.51 CGA BOARD.....	277
8.52 DIMM.....	277
8.53 Pad Base ASSY.....	277
8.54 (Reserved).....	278
8.55 (Reserved).....	278
8.56 (Reserved).....	278
8.57 (Reserved).....	278
8.58 (Reserved).....	278
8.59 RUBBER-ROLLER-K.....	279
8.60 FEED-ROLLER-K.....	281
Chapter 9 Imprinter	282
9.1 Specifications	282
9.1.1 Printing Specifications.....	282
9.1.2 Consumables.....	286
9.1.3 Block Diagram.....	287
9.2 Unpacking and Installation of the Imprinter	288
9.2.1 Unpacking.....	288
9.2.2 Installing and Removing the Imprinter	289
9.2.2.1 Installing fi-590PRF (Pre-Imprinter)	289
9.2.2.2 Installing fi-590PRB (Post-Imprinter)	292
9.2.3 Installing the Print Cartridge.....	294
9.2.4 Operation Test	298
9.2.5 Positioning the Print Cartridge.....	300
9.2.6 How to Use the Paper Guides	302
9.2.7 Print Setup	304
9.3 Cleaning	305
9.3.1 Cleaning the Print Cartridge	305
9.3.2 Cleaning the Imprinter.....	306
9.4 Replacing Consumables	309
9.4.1 Replacing the Print Cartridge.....	309
9.5 Imprinter Maintenance	313
9.5.1 Precaution before maintenance.....	313
9.5.2 Maintenance tools.....	313
9.5.3 fi-590PRF (Pre-Imprinter)	314
9.5.3.1 Replacing the Control PCA	314
9.5.3.2 Replacing PRF Frame Unit.....	315
9.5.3.3 Replacing the PRF Print ASSY	316
9.5.3.4 Replacing the Junction PCA	316
9.5.4 fi-590PRB (Post-Imprinter)	317
9.5.4.1 Replacing the Control PCA	317
9.5.4.2 Replacing the PRB Frame Unit.....	317
9.5.4.3 Replacing the PRB Print ASSY.....	318
9.5.4.4 Replacing the Junction PCA	318
9.6 Maintenance Parts for Imprinter.....	319
9.6.1 CONTROL PCA	320
9.6.2 JUNCTION PCA.....	320
9.6.3 PRF FRAME UNIT	321
9.6.4 PRF PRINT ASSSY.....	321
9.6.5 PRB FRAME UNIT	322
9.6.6 PRB PRINT ASSY.....	322
Appendix 1 Error Code List	323

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	PAGE	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				10/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	10/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 1 Overview

1.1 Scanner Overview

1.1.1 Features

This scanner has the following features:

1. Outstanding scanning speed (200/300dpi 100ppm/200ipm)
 - Providing High-speed processing at 300dpi high resolution required for OCR.
2. Highly reliable new feeding mechanisms (Mixed paper processing mechanism)
 - 1) Multifeed prevention functions
 - Reliable multifeed detection accomplished by three (3) Ultrasonic sensors
 - 2) Paper jam detection functions
 - Preventing users' valuable documents from being damaged
 - 3) Hopper capable for mixed paper feeding (each side guide of Hopper moves independently)
 - Easy loading of batches containing different sized pages
 - 4) Manual feeding mode
 - Scanning special type of papers by single feed or continuous manual feed
3. Helpful new functions for efficient work after scanning
 - 1) Elevator stacker
 - Providing stable stacking function and easy clear-up for scanned papers
 - 2) Function for preventing corners of skewed pages from being cut-off
 - Overscan area is automatically controlled to prevent cut-off image.
4. Advanced image processing function
 - 1) KOFAX's VRS (Virtual Rescan) image processing is a standard feature.
 - 2) Automatic Color Detection

Pre-Imprinter and Post-Imprinter options are easily installable.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	11/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

1.1.2 Scanner Specification

No	Items	Specifications	Remarks		
1	Scanner Type	Automatic Document Feeder (ADF) and Manual Feed			
2	Image sensor	Color CCD x 2			
3	Light source	Incandescent cold cathode fluorescent lamp x 2			
4	Optical resolution	600 dpi			
5	Output resolution	Binary: 50 - 600dpi Grayscale: 50 - 600 dpi Color: 50 - 600 dpi	Scalable in steps of 1 dpi		
6	Bit depth	Color: 24bit/pixel, Grayscale: 8bit/pixel, Binary: 1bit/pixel			
7	Scanning speed A4 Portrait (Note 1)		Simplex	Duplex	Monochrome Gray: JPEG Color: JPEG
		200dpi	100	200	
		300dpi	100	200	
		400dpi	60	120	
		600dpi	30	30	
8	Paper size	Maximum. 12"x17" (304.8 x 431.8mm) (Portrait) Minimum. A8 (52 x 74mm) (Portrait) 13			
9	Paper thickness	31 to 209 g/m ² (8.3 to 56 lb) 52 to 157 g/m ² (14 to 42 lb) (B4 or larger)	Refer to Section 1.2.2.		
10	Hopper capacity (Note 2)	Maximum: 500 sheets (80g/m ² or 20lb.)	Refer to 1.2.3.		
11	Stacker capacity	Maximum: 500 sheets (80g/m ² or 20lb.)	Tilting forward setting: Max. 200 sheets		
12	Paper loading	Front side facing UP			
13	Background	Selectable (black or white)	The same color is chosen on both sides.		
14	Multi feed detection	Yes (Ultrasonic sensor, Document length detection)			
15	Output mode of halftone patterns	Dither / Error diffusion			
16	Interface (Note 3)	Ultra Wide SCSI x1 (Note4)	Shielded, Wide-pitch 68 pin		
		USB 2.0 x 1 (Type B) (Note 5)	Also works with USB 1.1.		
		VRS x1	Connects CGA board		
		Third party slot (Type 3) x1			
17	Attached driver	FJ TWAIN / ScandAll 21 or ScandAllPRO 13 ISIS / QuickScan (demo version) Adobe Acrobat 7.0 (Standard edition) Software Operation Panel Visual Error Recovery Guide Soft-IPC VRS	Supplied in CD-ROMs		
18	Option	Item	Model name	Specification	Refer to Chapter 9 (Note 6)
		Pre-Imprinter	fi-590PRF	PA03450-D700	
		Post-Imprinter	fi-590PRB	PA03450-D710	
19	Image memory	256MB x 4 (Total: 1024MB)	(Note 7)		

Note 1: The scanning speed is the maximum speed of the scanner hardware. The actual speed may be slower due to system overhead such as data transfer time.

Note 2: The maximum capacity varies depending on the paper thickness.

Note 3: The SCSI and USB interface cannot be used together.

Note 4: Avoid connecting other SCSI devices to the same bus. Additional SCSI devices will reduce the scanner throughput.

Note 5: When connecting to USB 1.1, the scanning speed will decrease.

Note 6: You can imprint alphabetic characters and number on the scanned document.

You can install both the fi-590PRF and fi-590PRB, but you cannot use them at the same time.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	12/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Note 7: Extended memory

Depending on system configurations or PC status, document feeding may stop intermittently and processing speed may deteriorate during scanning of large documents or when scanning at high resolution as described below.

The condition that may cause speed deterioration:

- Scan mode: Color simplex / duplex
- Document size: B4, A3, 11" x 17", Legal
- Output resolution: 600 dpi or more

To avoid temporary suspension of scanning, install 2 commercially available extended memories in the slots. The Memory specification is listed in the table below.

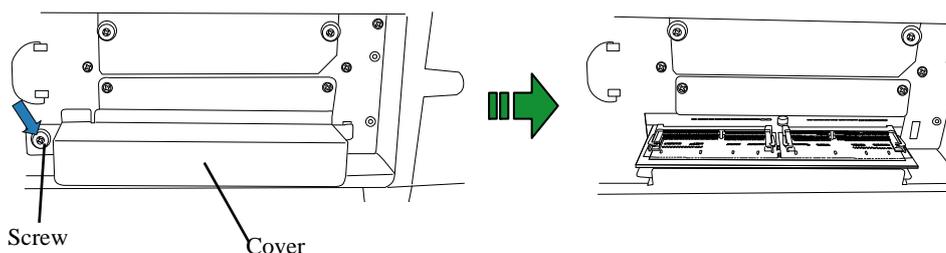
Be sure to fill both slots with the same memory type. If memories with different capacity are mounted, "E15" (Extended memory alarm, Section 5.3.30) is displayed on the Operator panel immediately after power-on.

Memory (DIMM) Specification	Fujitsu P/N
256MB (2 memories are required for a scanner.)	PA03450-D950

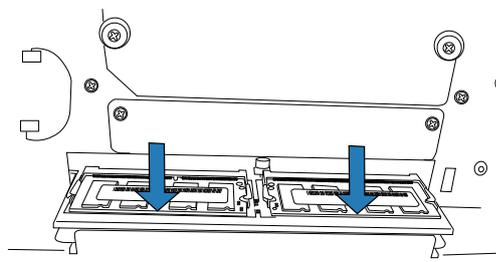
<How to install Extended memories>

Note: Before you install extended memory, first touch metal objects to release static.

1. Switch off the scanner's main power switch, unplug all connecting cables.
2. Unscrew the back cover of the scanner and take it off.



3. Insert the memory into the slot, and push down the module until it locks in position.



4. Put back the cover and tighten the screw.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	13/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

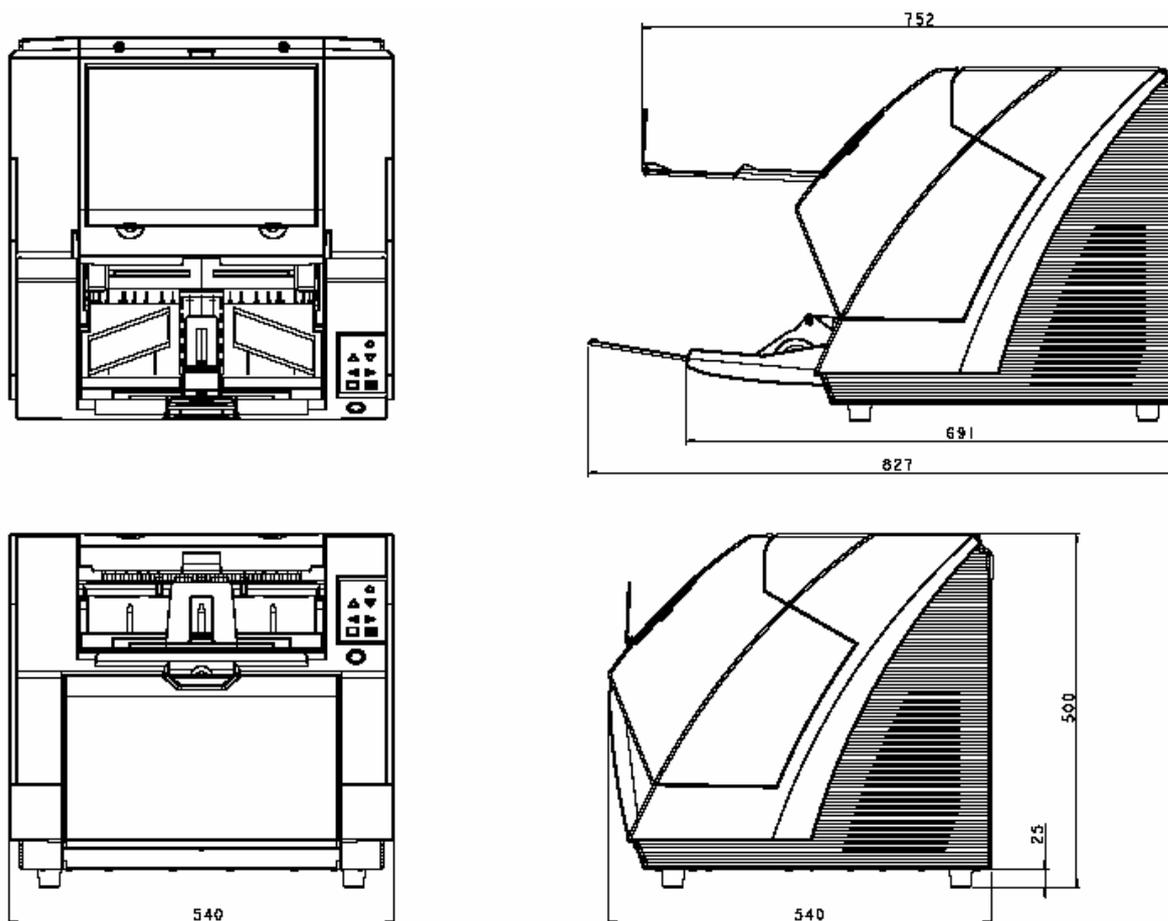
1.1.3 Environmental Specification

No	Items		Specifications	
1	Input power	Voltage	AC100V to 240V \pm 10%	
		Phase	Single-phase	
		Frequency	50/60Hz \pm 3Hz	
2	Power consumption		250 W or less (Rated power)	
			Sleep mode	Less than 6W (At ISIS/TWAIN connection)
				Less than 12W (At VRS connection)
3	Outer dimensions		540 (W) x 540 (D) x 500 (H) mm / 21 (W) x 21 (D) x 20 (H) in (with Hopper and stacker retracted)	
4	Installation space requirements		Refer to next page.	
5	Weight (kg)		50 kg (110.4 lb) or less	
6	Environmental condition	Temperature	Operating: 15 to 35 °C (59 to 95 °F) Not operating: -20 to 60 °C (-4 to 140 °F)	
		Humidity	Operating: 20 to 80 % (no condensation) Not operating: 8 to 95 %	
7	Heat capacity		172 kcal or less	
8	Total package weight		70 kg (160.9 lb)	

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	14/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

1.1.4 Outer Dimensions

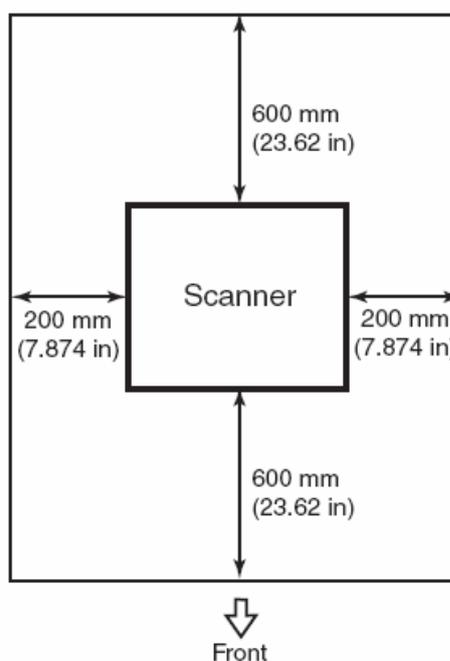
The following shows outer dimensions and required clearance around the scanner.



Installation Space Requirements

Table 1.2.2 Clearance

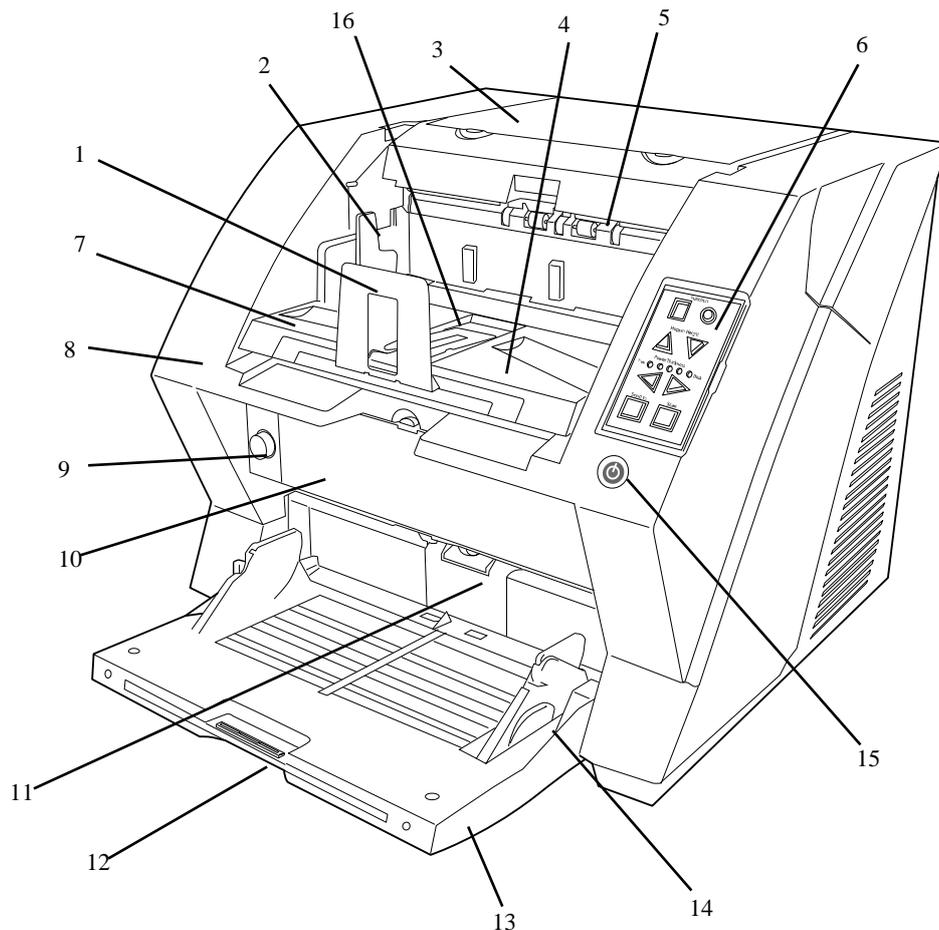
Side	Clearance
Right	200 mm (7.874 in)
Left	200 mm (7.874 in)
Front	600 mm (23.62 in)
Back	600 mm (23.62 in)



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	15/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

1.1.5 Appearance

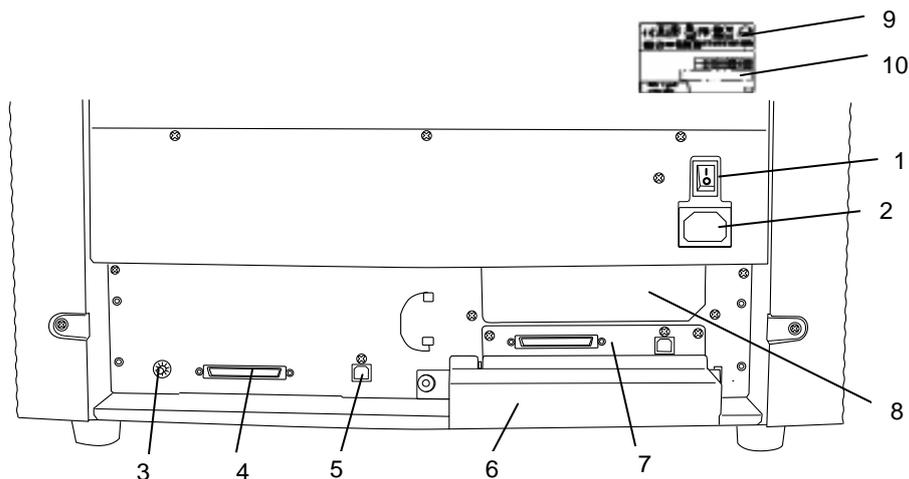
(1) Front



No.	Name	Function
1	Stopper	Prevents ejected documents from dropping off the scanner.
2	Stacker side guide	For aligning ejected documents to a certain width.
3	Top cover	Cover to access the consumables storage box and Post-Imprinter option (sold separately).
4	Stacker	Documents will be ejected into the Stacker after scanning.
5	Ejector	For ejecting the documents after scanning.
6	Operator panel	For operating the scanner.
7	Stacker extension	For scanning long documents. Pull the extension out according to the document's length.
8	ADF cover (Upper Unit)	Open the cover for cleaning the internal parts of the ADF or for replacing consumables.
9	ADF cover open button	Button used to open the ADF.
10	Pre-Imprinter cover	Used to access the optional Pre-Imprinter
11	ADF (Automatic document feeder)	The documents loaded onto the Hopper will be fed sheet by sheet for scanning.
12	Hopper extension	Pull the Hopper extension out for loading long documents.
13	Hopper	Documents to be scanned are loaded onto the Hopper.
14	Hopper side guides	Used to make sure that the paper to be scanned is fed into the scanner straight, avoiding skew.
15	Power button	Switch the scanner ON/OFF.
16	Small stopper	Pull up when the documents length is short.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	16/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai							

(2) Back

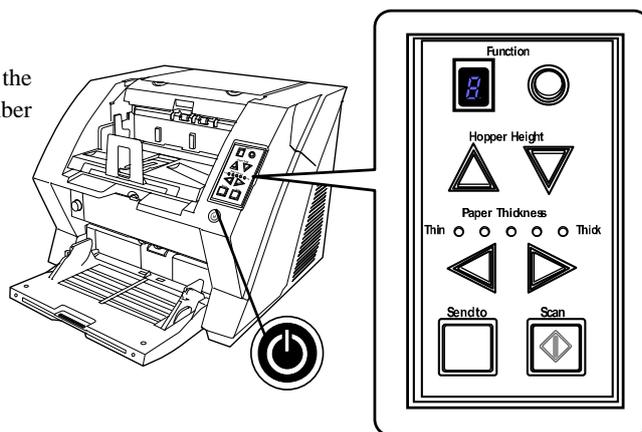


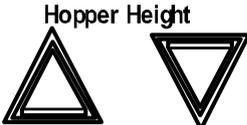
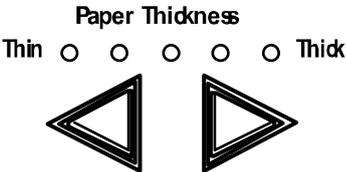
No.	Name	Function																																								
1	Main power switch	For switching the power supply ON/OFF.																																								
2	Power connector	For connecting the AC cable.																																								
3	SCSI ID Switch	Sets the scanner's SCSI ID.																																								
4	SCSI connector	For connecting the SCSI cable.																																								
5	USB connector	For connecting the USB cable.																																								
6	Extended memory slot	For installing extended memories (sold separately) (Refer to Section 1.1.2.)																																								
7	VRS slot	The CGA board has been installed in this slot.																																								
8	Extended slot	A spare slot for the third party optional board																																								
9	Certification label	<p>CE, GS, FCC Tested To Comply With FCC Standards, FOR HOME OR OFFICE USE, NI24, This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.</p>																																								
10	Manufacturing label	<table border="1"> <tr> <td>Rev. Label</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> </table> <p>MODEL fi-5900C-EM PART NO. PA03450-B911 SER. NO. ***** DATE ****-**-** 50kg AC100-240V 50/60Hz 1ϕ 5.5-1.5A</p> <p>Barcode Area</p> <p>PFU Limited a Fujitsu company</p> <p>MADE IN JAPAN</p>	Rev. Label											0	1	2	3	4	5	6	7	8		0	1	2	3	4	5	6	7	8		0	1	2	3	4	5	6	7	8
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	0	1	2	3	4	5	6	7	8																																	

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	
						DRAW. No. P1PA03450-B00X/6 CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED PAGE 17/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai	

1.1.6 Operator Panel

The operator panel is located on the right side of the scanner. The panel consists of a Function Number Display, buttons and LEDs.



Name	Function
Function Number display and Function button 	Shows the status of the scanner.
Hopper height adjustment button 	Use these buttons to adjust the height of the Hopper to the Upper/Middle/Lower Positions. The Hopper moves automatically to the right position after receiving a scanning command. However, this may cause a delay before the actual scanning starts. To avoid unnecessary waiting time, it is recommended to set the Hopper height prior to scanning. Refer to Section 3.1.5 for details. Pressing \triangle longer goes into manual feed mode. Pressing ∇ longer returns the hopper to the original position. Pressing \triangle and ∇ buttons simultaneously lock the stacker position. Pressing \triangle and ∇ simultaneously again release the stacker position.
Document thickness adjustment button 	Use these buttons, to set the paper thickness of the documents. (Normally no need to change from the default setting) Refer to Section 3.1.9 for details.
Send to button 	Use these buttons to start linked applications. Refer to Sections 3.11.1 and 3.1.14 for details on the settings.
Scan button 	
Power Button 	Use this button to turn the power ON/OFF. When the power is turned on, the button is illuminated in blue.

NOTICE

Operator Panel Overlays sheets in French, German, Italian, Spanish, Chinese, Russian and Korean are provided with the scanner. To change the overlay, open the plastic cover of the Operator Panel.

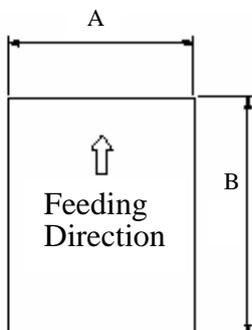
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE 18/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai		

1.2 Document Specification

This section describes the sizes and qualities of documents required for the satisfactory performance of the scanner.

1.2.1 Document Size

The following shows the supported document sizes.



Maximum		Minimum	
A	B	A	B
304.8mm (12 in)	431.8mm (17 in) *	53 52mm (2.1 in)	74mm (2.9 in)
		13	

When scanning long pages;

- the maximum scannable length is 863 mm (34 in).
- cropping and de-skewing is not available.
- resolution is 400dpi or less.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	19/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

1.2.2 Document Quality

This section describes the types and thicknesses of documents this scanner supports.

- Document Type

- Wood free paper
- Paper containing wood

When using documents of a paper type other than the above, perform a test scan with a few sheets of the same type before executing the actual task in order to check whether or not the documents can be fed properly.

- Paper thickness

Paper thickness is expressed by "Paper weight". The following shows the paper weights that can be used on this scanner.

Paper size	Paper weight	Remarks
Smaller than B4	31 to 209.3 g/m ² (8.3 to 56 lb.)	A4 : 210 x 297 mm
Equal or bigger than B4	52 to 157 g/m ² (14 to 42 lb.)	

- Precautions

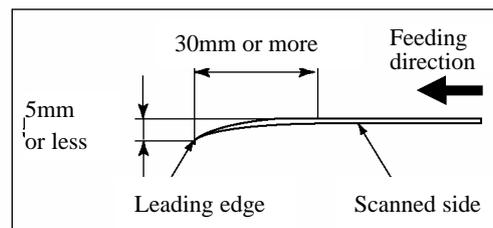
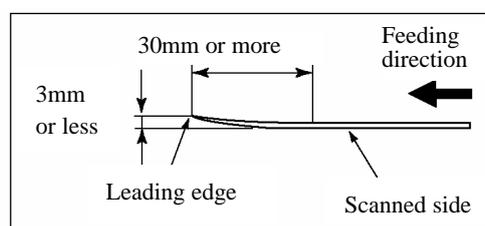
The following documents may not be scanned successfully.

- Documents of non-uniform thickness (e.g. envelopes)
- Wrinkled or curled documents (See right figure)
- Folded or torn documents
- Tracing paper
- Coated paper
- Carbon paper
- Carbonless paper
- Photosensitive paper
- Perforated or punched documents
- Documents that are not square or rectangular
- Very thin documents

Do not scan the following documents:

- Paper-clipped or stapled documents
- Documents on which the ink is still wet
- Documents smaller than A8 (Portrait) in size
- Documents larger than A3 or 11 in. x 17 in. size
- Documents other than paper such as fabric, metal foil, or transparencies

When using the ADF, the leading edge of all document sheets must be evenly aligned. Make sure that curling at the leading edge is within the following tolerances:



Notes:

- When scanning semi-transparent documents, set the density to light to avoid a bleed through.
- To prevent the rollers from becoming dirty, avoid scanning documents containing large areas written or filled with pencil. If scanning of such documents is inevitable, clean the rollers more frequently.
- When feeding errors, paper jams and multifeeds occur frequently, refer to Section 3.1.9.
- Carbonless paper contains chemical substances that may damage the consumables of the scanner when documents are fed. Pay attention to the following:

 Cleaning: If pick errors occur frequently, clean the scanner consumables. For details on cleaning these items, refer to Section 3.2.

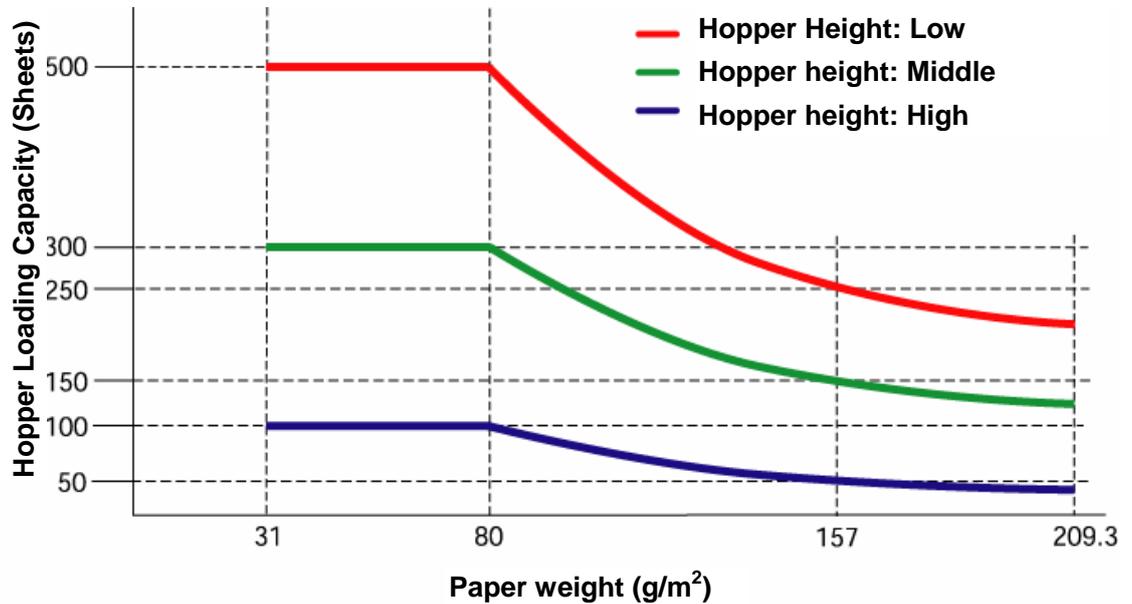
 Replacing parts: The service life of the scanner consumables may be shortened when scanning carbonless paper.

- When scanning paper containing wood, the service life of the scanner consumables may be shortened compared to the case of scanning woodfree paper.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	20/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

1.2.3 Maximum Document Loading Capacity

The maximum number of sheets that can be loaded on the Hopper is determined by the size and weight of the documents. The following graph shows the maximum document loading capacity of the Hopper with respect to paper weight.



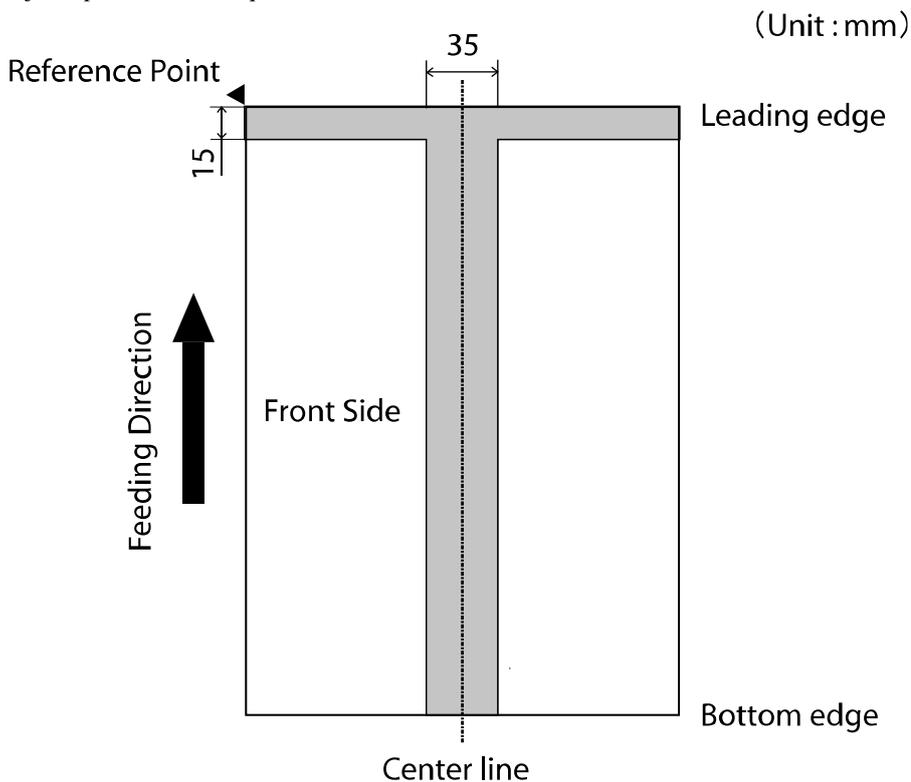
Paper weight conversion table

Unit	Conversion									
g/m ²	31	52	64	75	80	90	104	127	157	209.3
lb	8.3	13.9	17.0	20.0	21	24.0	27.9	34.0	42	56

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	21/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

1.2.4 Hole-punching Prohibited Areas

Punched holes in the shaded areas may cause errors.
 For job separation sheet requirements, refer to Section 1.2.7.



Note: If there are any holes in the 35mm wide central column, you can set the document a bit to the left or right to avoid detecting error. (Refer to Section 3.1.6.)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	22/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

1.2.5 Multi feed Detection Conditions

The following describes the conditions required for Multi feed detection:

1) Check overlapping

- Paper weight: 31 ~ 209.3 g/m² (8.3~56.1lb)
- Punched holes are not allowed within 35 mm (1.4 in.) of the vertical lines of the center, right and left sides of the document as shown in Fig.1
- Other paper shall not be glued within 35 mm (1.4 in.) of the vertical lines of the center, right and left sides of the document as shown in Fig.1

2) Check length

(Load only documents of the same length onto the Hopper.)

- Document length deviation: 1 % or less
- Punched holes are not allowed within 35 mm (1.4 in.) of the vertical center line of the document as shown in Fig.2.

3) Check overlapping and length

(Load only documents of the same length and thickness onto the Hopper.)

- Paper weight: 31 ~ 157 g/m² (8.3~42lb)
- Document length deviation: 1 % or less
- Punched holes are not allowed within 35 mm (1.4 in.) of the vertical lines of the center, right and left sides of the document as shown in Fig.1.
- Other paper shall not be glued within 35 mm (1.4 in.) of the vertical lines of center, right and left sides of the document as shown in Fig.1.

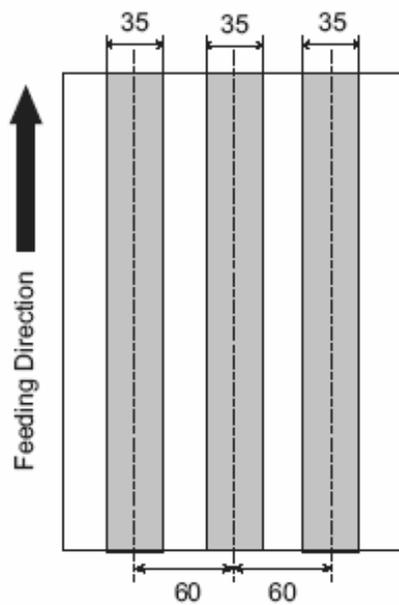


Fig.1

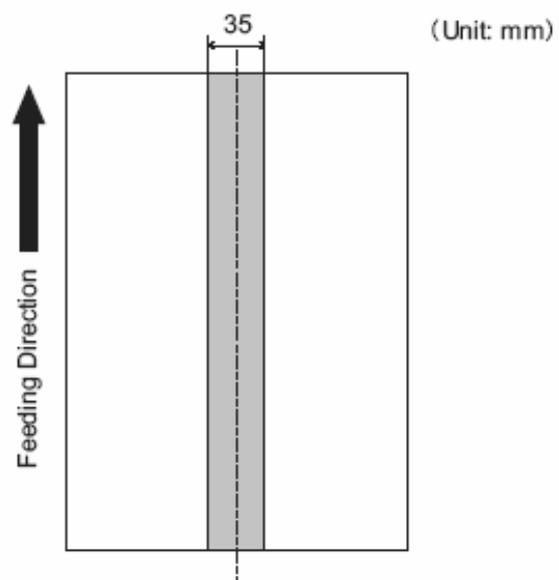


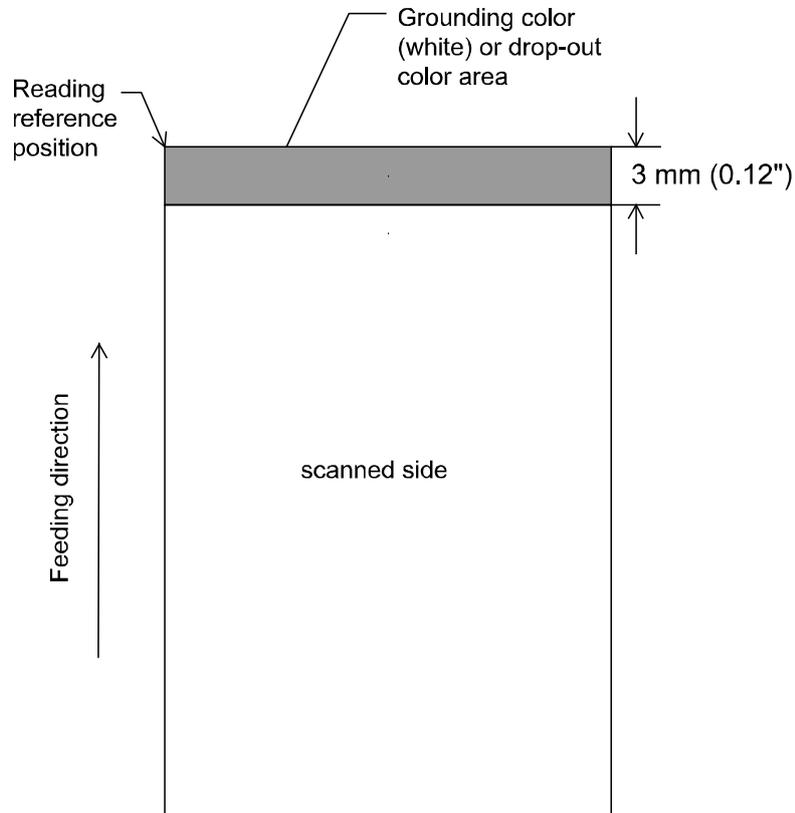
Fig.2

Note: When you want to detect overlapping, be sure that paper documents are not clinging to each other. Those clinging documents (glued or with static cling) may cause a lower multifeed-detection ratio.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

1.2.6 Background Color Areas

Dropout color detection is performed in the shaded area as shown in the Figure below. The top 3mm on both sides of a document, should have no printing in this area. When using dropout color, the color can be in this area. If this cannot be followed, turn the white level follower off when reading.

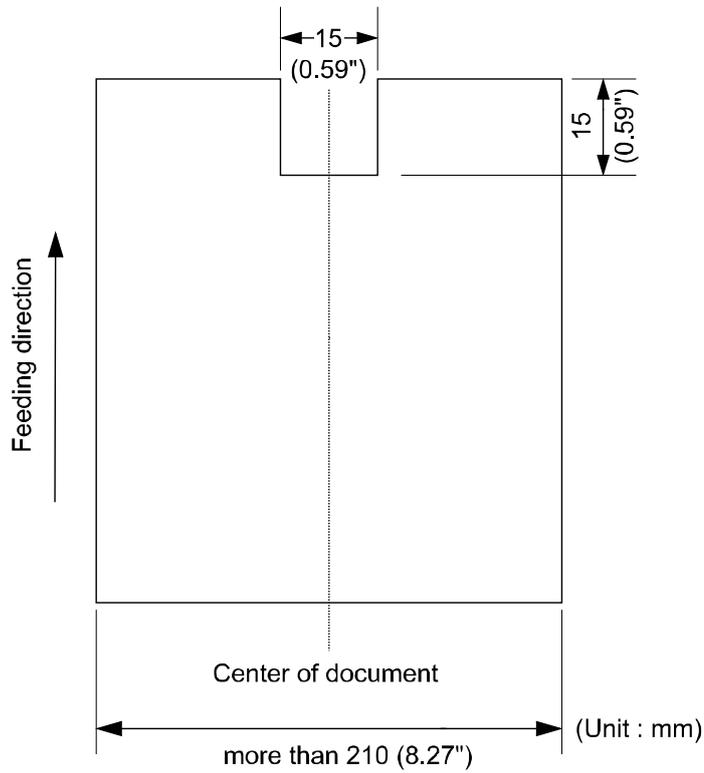


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	24/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

1.2.7 Job Separation Sheet

1. Shape

The following shows the typical format of the job separation sheet.



2. Document Specifications

Document width must be A4 width (210mm/8.27") or wider.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	25/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

1.2.8 Scanning Mixed Documents

When scanning documents of different thickness/Friction Coefficients/sizes, the following restrictions apply. Before you scan any mixed documents, always test scan a few pages to see if the mixed document can be properly fed.
(For details on how to scanning mixed documents, refer to Section 3.1.16.)

Types of Documents

It is recommended to align the paper direction (how the fibers are lying in the sheet) with the feeding direction.

The Thickness of Documents

The mixed documents' paper weight (thickness) should be in the range below.

31 ~ 209.3 g/m² (8.3~56.1 lb, 0.038 ~ 0.257mm)

For paper sizes equal or bigger than B4: 52 ~ 157 g/m² (14~42 lb)

The Friction Coefficients

Paper of same manufacturer's same brand is recommended. When paper of different manufacturers/brands are mixed, the differences of their friction coefficients become very large, which will adversely affect the feeding performance.

Generally speaking, the friction coefficients of different kinds of paper shall be in the range of 0.35 ~ 0.60.

Document Sizes

Refer to the table below and Section 3.1.6 "Setting the documents off center on the Hopper" when mixing documents of different sizes.

Notes:

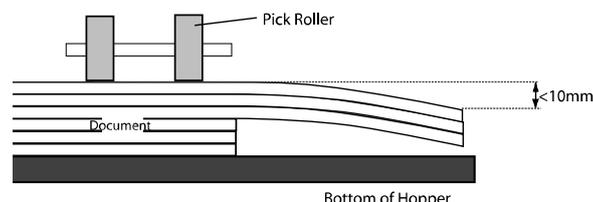
- When scanning mixed size documents, because the Hopper side guides will not function, the scanned images are easily skewed.
- We recommend you to enable "Automatic Page Size Detection".
- Multifeed Detection by length cannot be used together with "Automatic Page Size Detection".

Maximum size		A3	DL	B4	LTR	A4	B5	A5	B6	A6	B7	A7	B8	A8
	Width (mm)	297	279	257	216	210	182	149	129	105	91	74.3	64.3	52.5
Minimum size	A3	297												
	DL	279												
	B4	257												
	LTR	216												
	A4	210												
	B5	182												
	A5	149												
	B6	129							Mixing Possible					
	A6	105												
	B7	91												
	A7	74.3												
B8	64.3													
A8	52.5													

DL: 11x17 in, LTR: Letter size

Because of friction, smaller documents under larger documents will be moved when the larger document is being picked, adversely affecting performance.

When setting the documents, try to meet the condition illustrated at the right:



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 26/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	26/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

1.2.9 Condition for De-skew and Automatic Document Size Detection (Automatic Cropping)

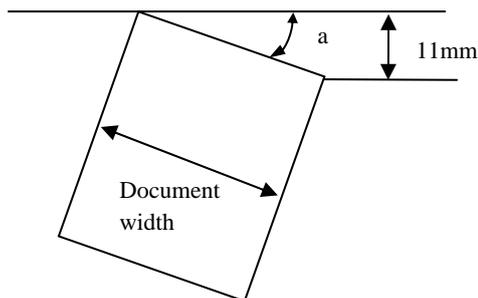
Available scanning mode:

ADF front side/backside: Binary / Grayscale / Color

Following condition is required for correct De-skew and Auto-cropping.

- 1) Paper weight: 31 to 209 g/m² (8.3 to 56lb)
- 2) Shape of document: Rectangular
- 3) Documents cannot have a black border within 5mm of the edge of the page.
- 4) Skew angle (a) at feeding must be within 45 degrees.

<ADF>



NOTICE

This function may fail due to the noise of image. Cleaning of the ADF may be effective to reduce this error rate.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	27/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 2 Installation

2.1 Unpacking the Scanner

⚠ CAUTION

Injury: This scanner weighs 50 kg (110.4lb). Never allow one person to lift the scanner.

Follow the procedure below to unpack the scanner. Make sure that all the accessories are included in the package.

1. Remove the joints to open the packaging box.
2. Remove the upper box.
3. Remove the Accessory box.
4. Remove cushions TF and TR and take out the scanner from the box.
5. Remove the scanner from the polythene bag.
6. Remove the protection tape from the scanner.

Table2.1 Components

Item	Description	Quantity
1	Upper box	1
2	Cushion (TR)	1
3	Accessory box (including Document smoother, Operator Panel Overlay, Cables, CD-ROM, Manuals, etc.)	1
4	Cushion (TF)	1
5	Scanner (wrapped with a polythene bag)	1
6	Cushion (BR)	1
7	Cushion (BL)	1
8	Joint	4
9	Bottom box	1

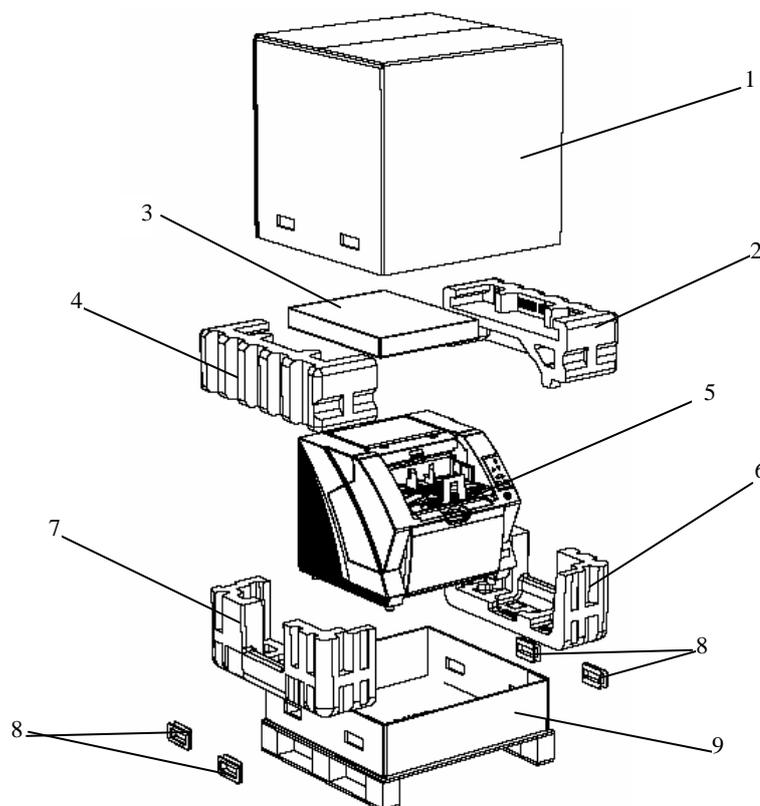


Figure 2.1 Packaging configuration

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	28/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

2.2 Installing the Scanner

2.2.1 For Safety Installation

Before installing the scanner, read the following cautions carefully to avoid scanner trouble.
Refer to Section 1.1 “Scanner Overview” for information of power source and scanner dimensions.

- Install the scanner away from strong magnetic fields and other sources of noise.
- Do not install the scanner near heating apparatus or in the direct sunlight.
- Install the scanner in a location which is level and subject to minimal vibration.
- Do not install the scanner in locations subject to humidity and dust.
- Do not block the ventilation ports.
- Protect the scanner from static electricity.
- Use proper AC voltage.
- Make sure the rubber pads on the bottom of the scanner are firmly on the desktop.

2.2.2 Installation

Install the scanner by following the procedures below.

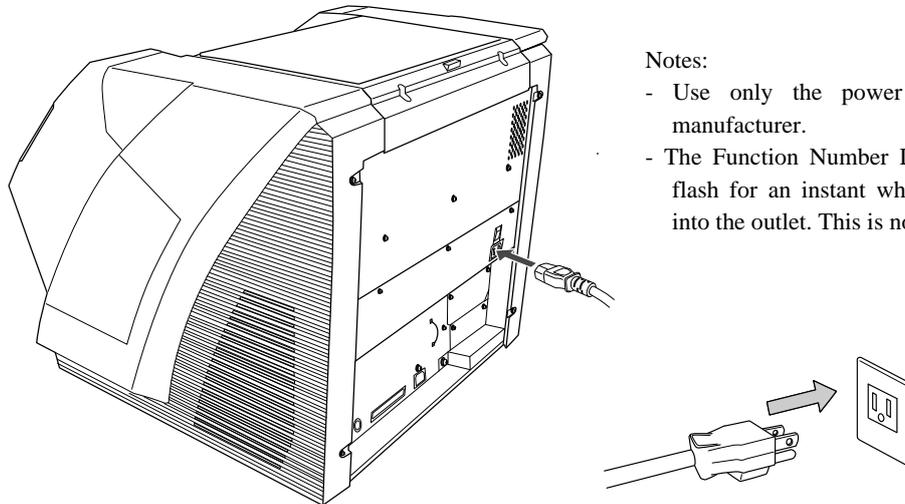
1. Place the scanner at its installation site.

For details on the scanner’s dimensions and required installation space, refer to Section 1.2 “Environmental Specification”.

Notes:

- The scanner weight is 50kg (110lb). Never allow one person to lift the scanner. Make sure two persons are available when moving the scanner.
- When carrying the scanner, only grip the bottom side.

2. Connect the AC cable to the Power inlet of the scanner and plug it into an outlet.



Notes:

- Use only the power cable provided by the manufacturer.
- The Function Number Display and the LED may flash for an instant when plugging the AC cable into the outlet. This is not a malfunction.

3. Connect the USB cable or the SCSI cable to the scanner. Connect the other end of the cable to the PC.

Note 1: Connect only one of the USB or SCSI interface cable.

- When running Windows 95 or Windows NT 4.0, connect the scanner using the SCSI interface. These operating systems do not support the USB interface.
- When running Windows 98, Windows Me, Windows 2000, or Windows XP, connect either using the USB or the SCSI interface.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	29/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Note 2: Be sure to use the USB cable which comes with this scanner. Correct operation with commercially available cables is not guaranteed.

Note 3: When connecting to a USB hub, use the first stage USB hub that is closest to the computer. If you use the second or later hub stages, the scanner may not operate correctly.

Note 4: If you connect the scanner with USB 2.0, it is required that the USB port and Hub are compliant with USB 2.0. The scanning speed may slow down if it is connected with USB 1.1.

Note 5: When using the scanner with a SCSI interface, the following SCSI cable and SCSI card must be purchased.

- SCSI cable:

Use a cable which complies with a 68 Pin Contact Shielded High-Density SCSI Device Connector for ultra SCSI.

- SCSI card:

Find the recommended SCSI card information on the Fujitsu web site (FAQ).

<http://imagescanner.fujitsu.com/>

Note 6: When connecting the SCSI cable, turn the scanner off. Be sure to connect the SCSI cable first, and, then turn on the power of the scanner and PC.

Note 7: In a SCSI daisy chain configuration, connect the scanner so that it is the terminated device.

Note 8: Be careful not to bend the pins of the SCSI cable when connecting to the scanner.

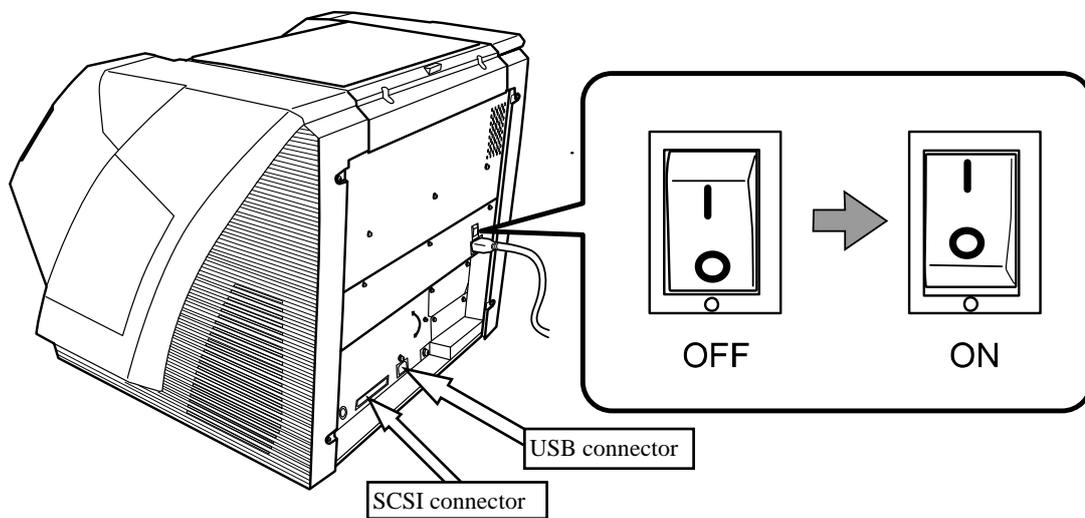
4. If you are connecting the SCSI interface, set the SCSI ID using the SCSI ID switch on the back of the scanner.

The SCSI ID is initially set to "5" at the factory. If the SCSI ID of another SCSI device is set to the same ID, either change the scanner's SCSI ID or SCSI ID of the other SCSI device.

ID No.	Description
0 to 7	Can be set as the ID
8,9	Works with the factory default value (SCSI ID=5).

When the scanner is turned on, the SCSI ID set is enabled.

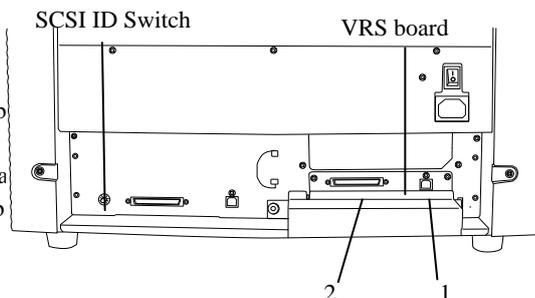
5. Press the "I" side of the main power switch to turn on the scanner.



■ **When using VRS**

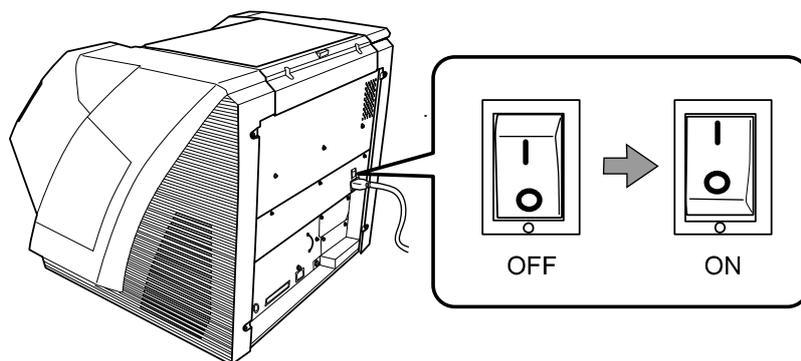
When using the Kofax® VRS, you need to connect it to exclusive VRS board with either the USB cable or SCSI cable.

1. If you use the USB cable, insert it into the interface connector (1) shown below. If you use the SCSI cable, insert it into the interface connector (2) shown below.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	30/327		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.					

3. When using the SCSI cable, set the SCSI ID using the SCSI ID switch on the back of the scanner. (Refer to step 3 in "Connecting the SCSI interface" on page.5)
4. Press the "I" side of the main power switch to turn on the scanner.



Note: VRS (Visual Re Scan™) is the image processing software manufactured by Kofax Image Products, Inc. It enables to correct image defects, such as document skew when scanned by the scanner, or "jitter" generated by colors or half-tone dot meshing, and so on. You need to install the software in the "VRS Install CD" enclosed with this scanner.

■ Installing the Scanner Application

The following scanner drivers and application software are included with the scanner.

Scanner drivers:

- FUJITSU TWAIN 32 Scanner driver
- FUJITSU ISIS Scanner driver

Application software:

- ScandAll 21 (for FUJITSU TWAIN 32)
- QuickScan Pro™ (for FUJITSU ISIS)

Install the appropriate scanner driver for the application you will use.

Information for scanner errors

- Error Recovery Guide

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	31/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

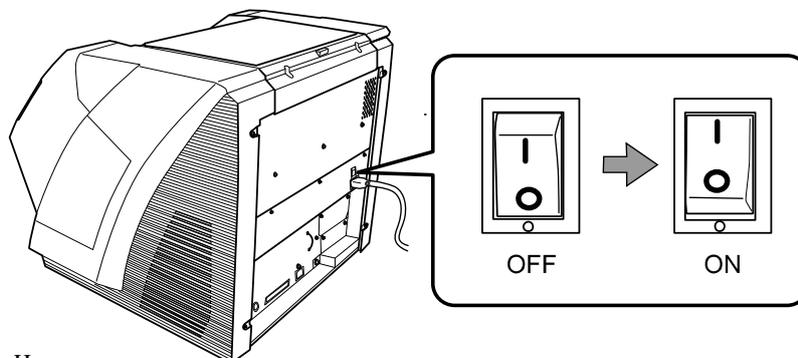
Chapter 3 Operation and Daily Maintenance

3.1 Basic Operation

3.1.1 Power ON/OFF

<Turning the Power ON>

1. Press "I" side of the main power switch located on the back of the scanner.



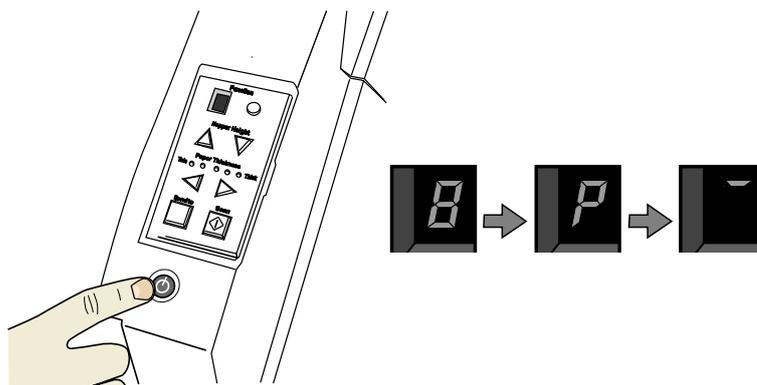
2. Open the Hopper.

Note: Be sure to open the Hopper before turning on the scanner with the Power button.

3. Press the Power button on the Operator panel.

The power button, Function Number Display, and the Paper Thickness LED will light up blue.

During initialization, the Function No. Display changes from "8" → "P" to "1" in order. When "1" is displayed, it means the scanner is ready.

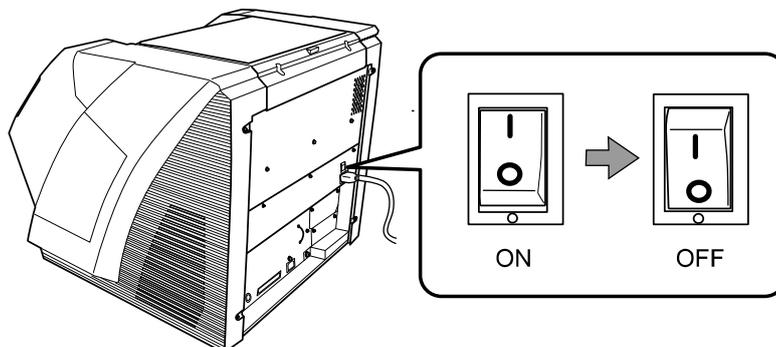


<Turning the Power OFF>

Hold the Power button for at least two seconds.

➔ The Power button light goes off and the scanner becomes disconnected.

Note: If the scanner will not be used for an extended period, turn off the scanner's main power switch on the back and unplug the power cable.

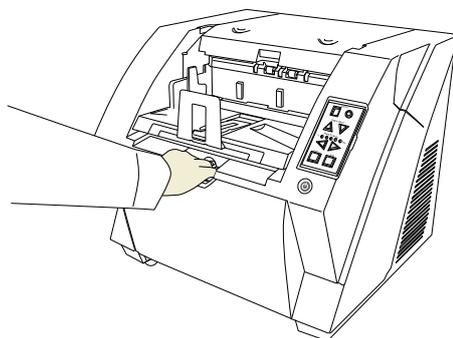


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	32/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

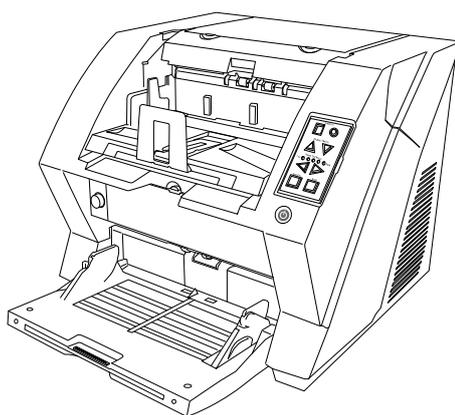
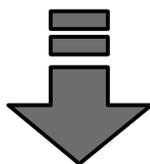
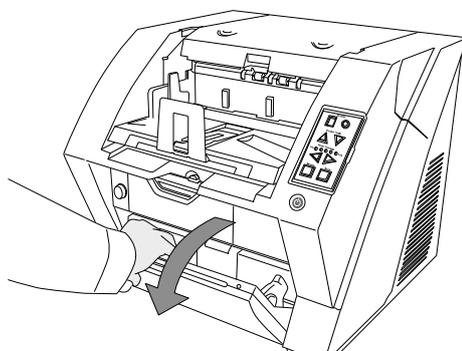
3.1.2 Opening or Closing the Hopper

<Opening the Hopper>

1. Hold the blue part located on the center of the Hopper.



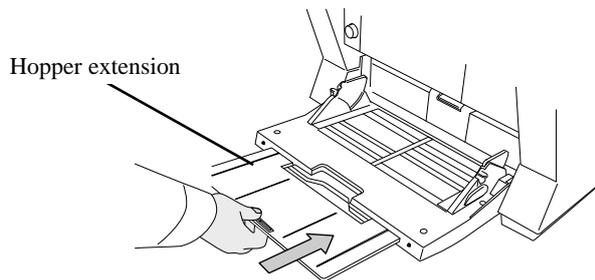
2. Gently flip down the Hopper.



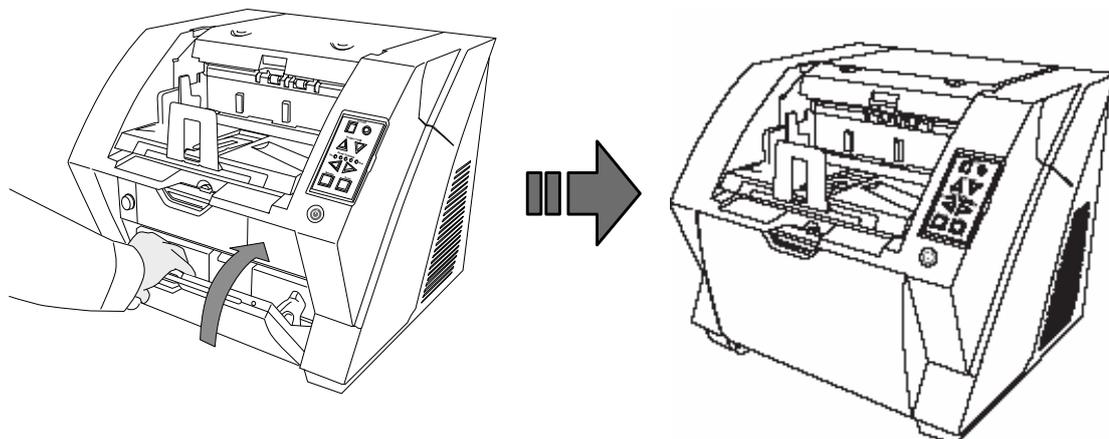
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	33/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

<Closing the Hopper>

1. Remove any documents that are on the Hopper.
2. If the Hopper extension is open, slide to the closed position.



3. Lower the Hopper if it is not in the lowest position.
Lower the Hopper to the bottom by pressing the ▽ button. (Refer to Section 3.1.5.)
4. Close the Hopper.



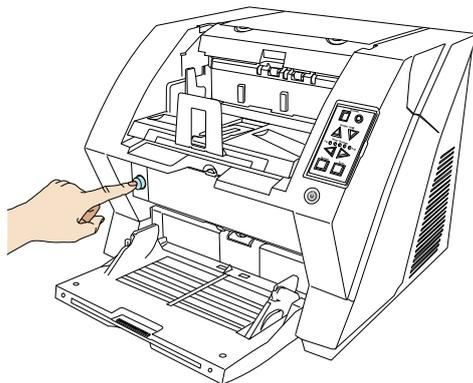
Note: Push the hopper until it's securely locked in place.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	34/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

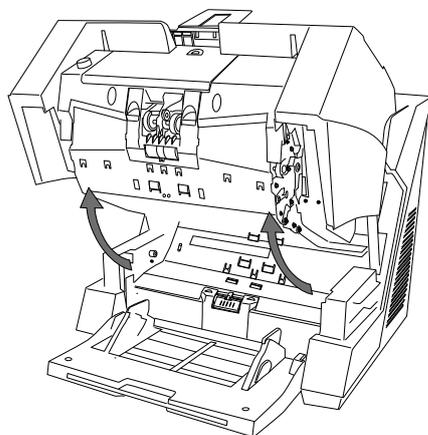
3.1.3 Opening and Closing ADF

<Opening ADF>

1. Remove any documents that are on the Stacker.
2. Press the ADF cover open button.

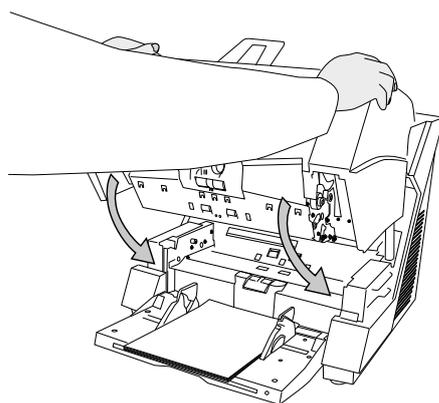


➔ The cover slowly opens automatically.



<Closing ADF>

1. Hold the ADF cover with both hands and press down slowly.



Press the ADF cover until it locks in place.

⚠ CAUTION

When closing the ADF, be sure nothing is left inside of the ADF.
Be careful not to pinch your fingers.

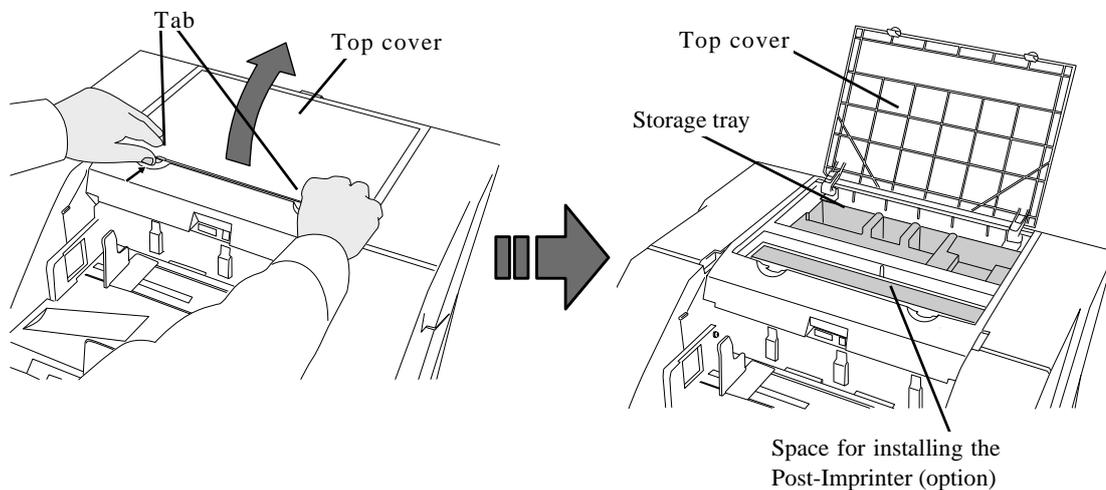
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	35/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

3.1.4 Opening and Closing Top Cover

Under the Top cover, there is a storage tray for storing consumables, cleaning and a space for installing the optional Post-Imprinter. When you use the tray or access the Post-imprinter, open the Top cover as follows.

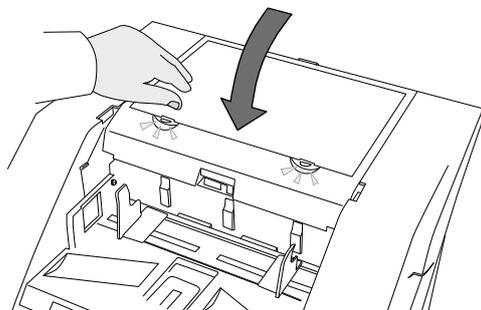
<Opening the Top Cover>

Press the tabs on the Top cover and open the Top cover.



<Closing the Top Cover>

Close the Top cover and press lightly until the tabs lock in place.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	36/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.1.5 Setting the Hopper Height

When there is no alarm (the function number display is showing “1”), the Hopper height can be adjusted. When scanning small batches adjusting the Hopper higher will shorten the time it moves to the feeding position.

⚠ CAUTION

- Do not touch the Hopper when it is being adjusted. Your finger(s) may be pinched.
- Do not load anything onto the Hopper when it is moving. If something gets into the mechanism, the scanner may be damaged.
- Do not place anything under the Hopper. The Hopper may collide with it and become damaged.
- Do not press the [Hopper Height] (△ or ▽) button when the Hopper is closed. The Hopper may be damaged.

The adjustment is not possible when:

- The scanner is scanning
- The Hopper is closed
- When using Software Operation Panel (Section 3.4)

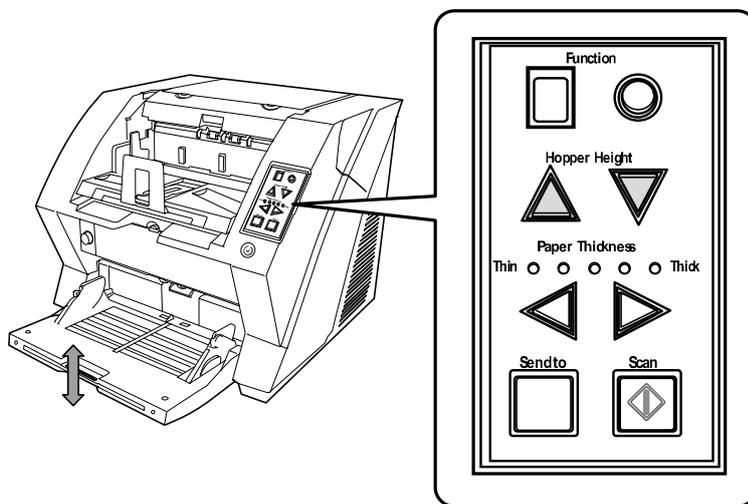
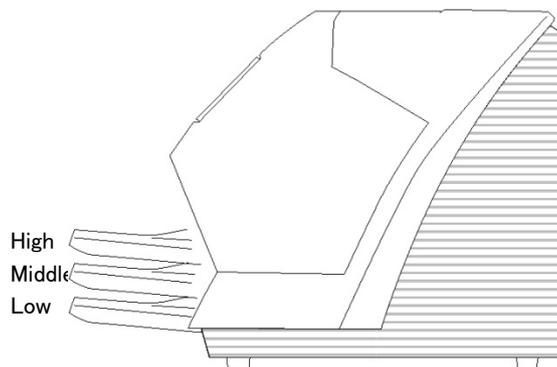
Three Hopper heights are available and the corresponding capacities are as follows:

- High: Up to 100* sheets
- Middle: Up to 300* sheets
- Low: Up to 500* sheets

*: Estimated when scanning 80g/m² (20 lb) paper.

Note: The Hopper capacity will vary depending on the paper weight.

The Hopper Height adjustment is done by using the Operator Panel on the scanner.



When you press the △ button, the Hopper is raised one step higher. (Low → Middle → High)

When pressing the ▽ button, the Hopper is lowered one step lower. (High → Middle → Low)

Note: Immediately after the scanner is turned on, the Hopper is initially set to Low.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	37/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

3.1.6 Loading Documents on the Hopper

<Preparing the Documents>

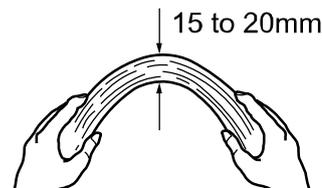
1. Align both edges of the document.

Note: For how to scan documents with different widths, refer to Section 3.1.16 “Scanning Documents with different widths”.

2. Fan the documents.

1) Take a stack of documents with thickness about 15mm to 20mm (1/2 to 3/4 inch).

2) Hold both ends and bend the documents into an arch.



3) Firmly holding the documents with both hands, bend them back as follows so that the bent section rises up in the middle.

4) Repeat steps 1) to 3) a few times.



5) Rotate the document 90 degrees, and fan again.

3. Align the leading edge of the documents.

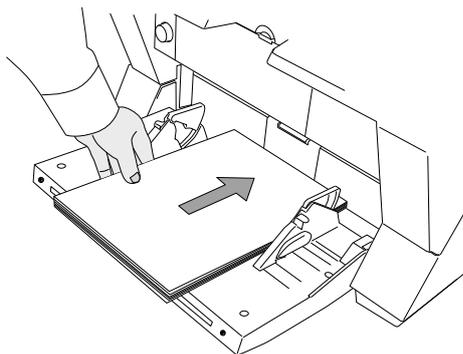
<Setting the Document>

There are 2 ways to set documents on the Hopper.

- (1) Set the document at the center of the Hopper (mainly for document of equal size pages).
- (2) Set the document off center on the Hopper (mainly for documents of different size pages, or when you want to align the documents at the side instead of the center line).

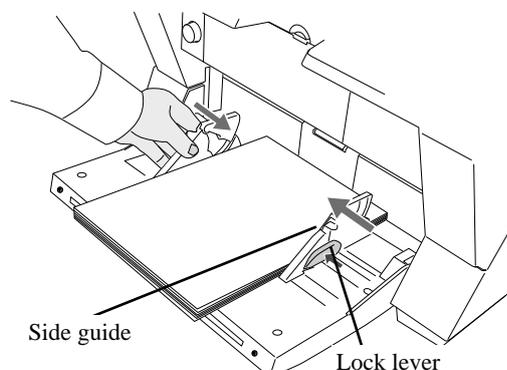
(1) Setting the documents at the center of the Hopper

1. Load the document face-up on the Hopper.



2. Adjust the Side guides to the document width.

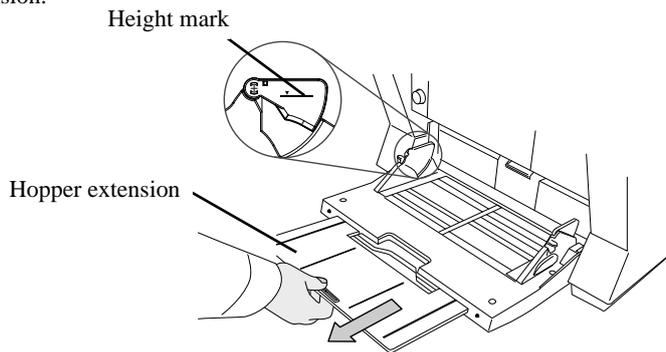
Slide the Side guides so that they contact the document sides. If there is space between the document edges and the guides, the scanned images may be skewed.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	38/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai			

Notes:

- Make sure that the document stack does not exceed the maximum height mark on the inner side of the Side guides.
- For long documents, use the Hopper extension.

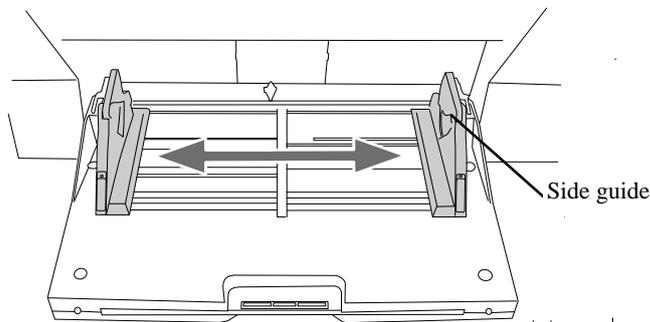


3. Scan the documents.

(2) Setting the documents off center on the Hopper

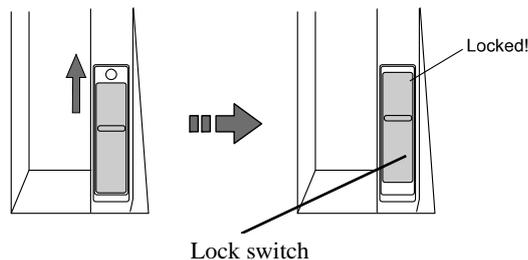
Note: Refer to Section 1.2.8 for scanning documents with pages of different sizes.

1. Move the Hopper side guides to their outermost positions.

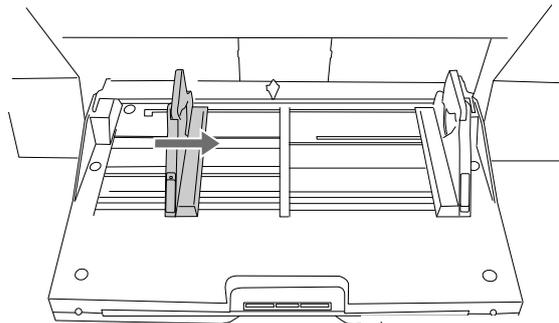


2. Lock the side guide not to be used.

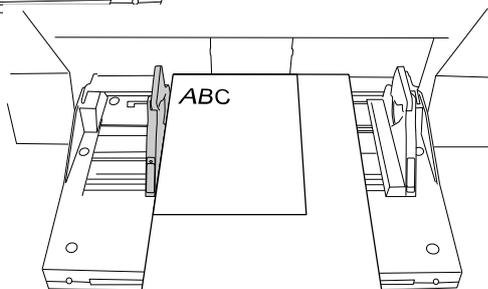
Flip up the lock switch on the front side of the side guide to lock it.



3. Move the other side guide to the desired position while pressing down the lock lever.

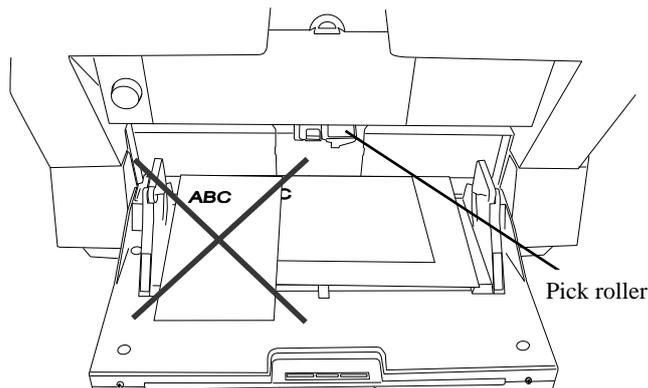


4. Place the documents against the side guide.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	39/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

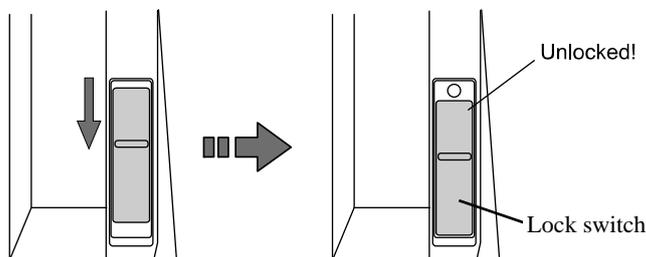
Note: Make sure that all the pages are under the Pick roller. (Otherwise they will not be picked.)



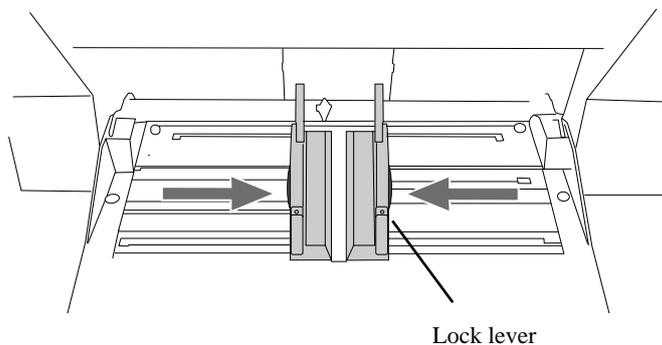
5. Scan the document.

Note: If you want to unlock side guides, follow the steps below:

(1) Release the locked side guide by flipping down the switch.



(2) Move both side guides toward the center while pressing the lock lever.



(3) Release the lever.

➔ Now the two sides will move symmetrically as before.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	40/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

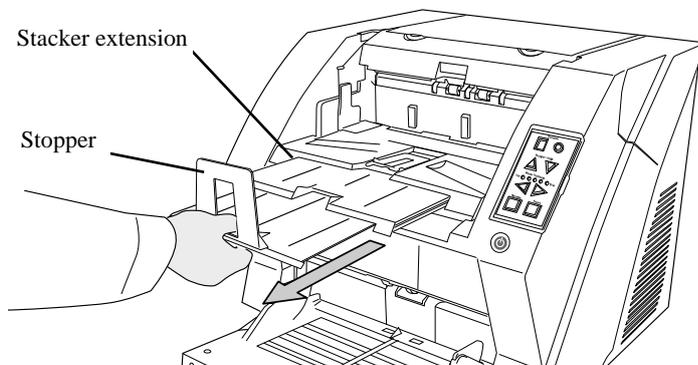
3.1.7 Setting up the Stacker

The documents set on the Hopper, once scanned, will be ejected onto the stacker.

The Stacker table is horizontal, as a default, for aligning the bottom edge of the ejected documents, You can tilted the Stacker table forward for aligning the leading edge of the ejected documents also. Set up the Stacker by adjusting the Stacker extension, Stopper, Side Guides and Stacker's inclination.

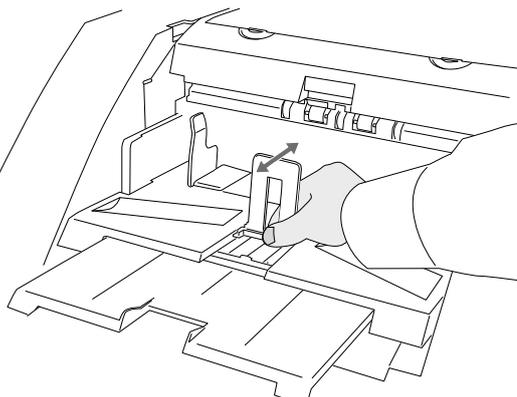
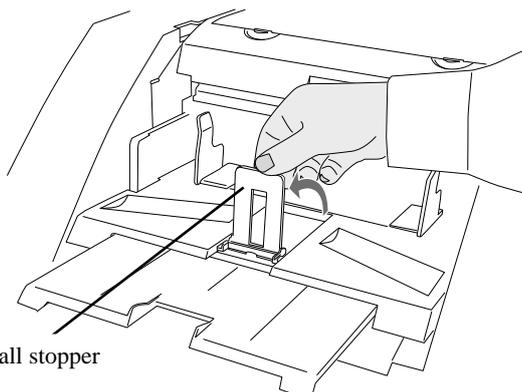
<Stacking the document>

1. Pull out the stacker extension in accordance with document length.

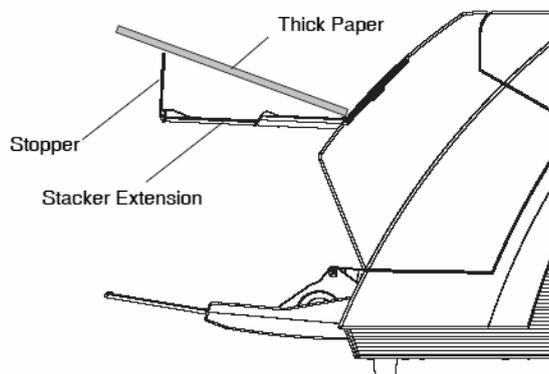


Notes:

- Do not use the stopper to pull out the stacker extension. It may be damaged.
- Be sure to extend the stopper longer than the documents.
- For short documents, use the small stopper.



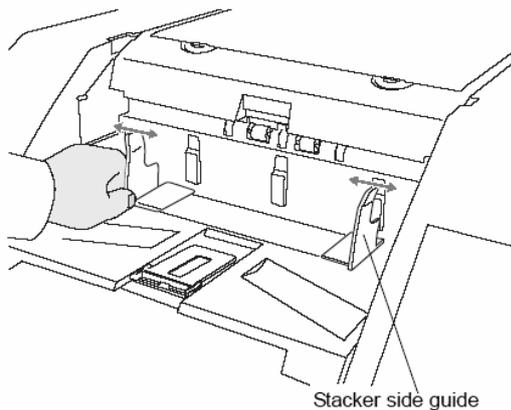
-When scanning long pages (longer than A3), the document may be longer than the stacker extension even if it is pulled to its outermost position. In case like this, place a thick paper about the size of A4 on the stopper and make a slope as depicted on the right.



(The scanner can scan documents up to 863mm long.)

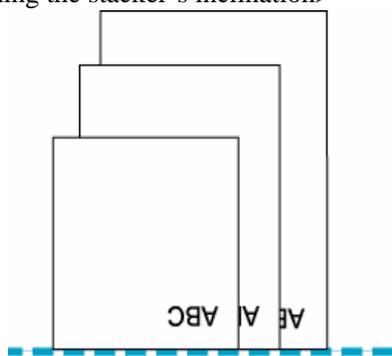
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	41/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

2. Adjust the stacker side guides to the document width.

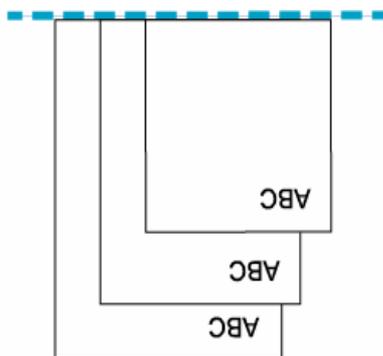


Note: Be sure to set the stacker side guides a little wider than the document width.

<Switching the stacker's inclination>



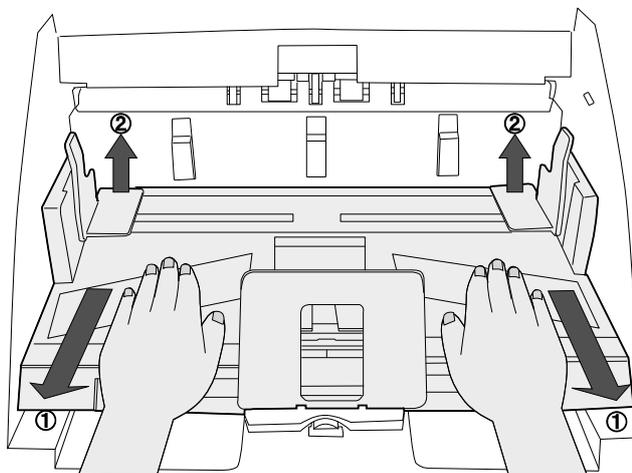
By bottom edge alignment by horizontal stacker setting



Leading edge alignment by tilting forward setting of stacker

Switching to the tilting forward setting

1. Slide the stacker out towards you.
2. Push down the front of the Stacker.



➔ The stacker inclines towards you.

3. Move your hands away from the stacker slowly.
 - ➔ The stacker will lock in a position tilting forward.

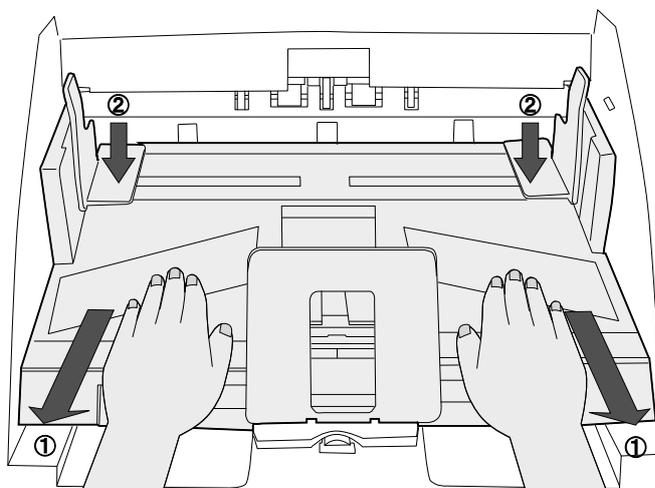
Notes:

- When set to “the leading edge” position, the stacker will lock in place and will not move during scanning operation.
- In this position, the stacker’s maximum load is 200 sheets.
- If the pages do not stack well, use the Document smoother. (Section 3.1.8)
- When you align the documents from the leading edge (by tilting forward setting of stacker), the documents must meet the following conditions: (Length) / (Width) < 1.5

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	42/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Switching back to horizontal setting

1. Slide the stacker out towards you.
2. Push down on the back side of the Stacker.

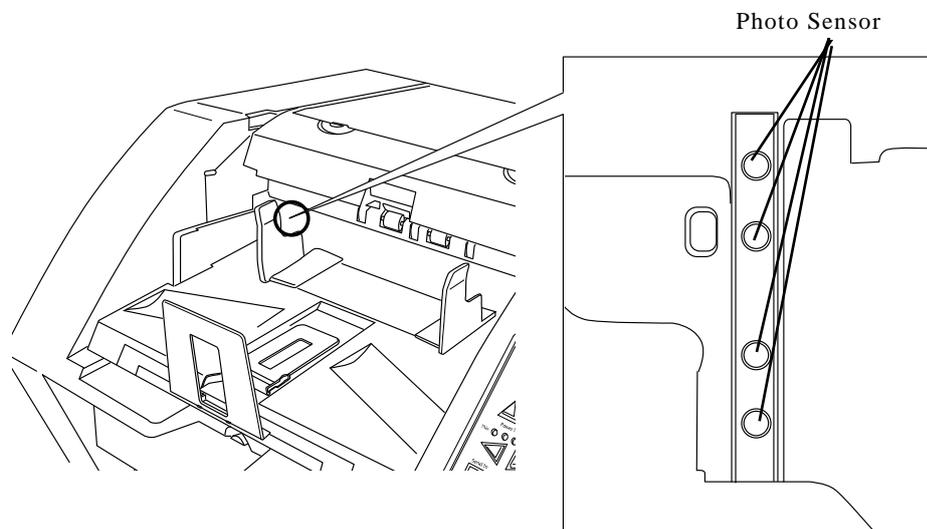


→ The stacker goes back into its horizontal position.

3. Move your hands away from the stacker slowly.
 - The stacker will lock in a horizontal position.

Notes:

- When set to “the bottom edge” position, the stacker will automatically adjust its height according to its load.
- When set to “bottom edge alignment” position, the stacker’s maximum load is 500 sheets.
- On both side walls of the stacker, photo sensors are installed to detect the height of the paper in the Stacker. Make sure these sensors are not blocked.



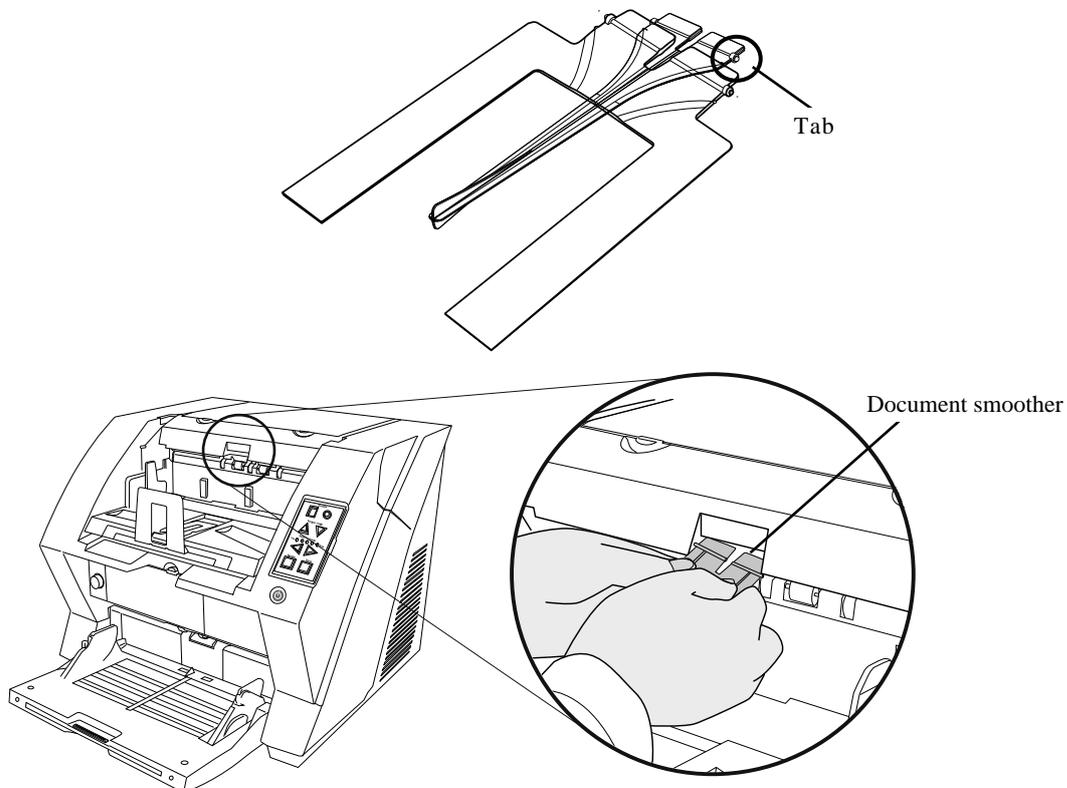
- The stacker may move up or down when the scanner is in Ready status or when scanning starts. Do not touch the stacker or place anything on it at those times.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	43/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

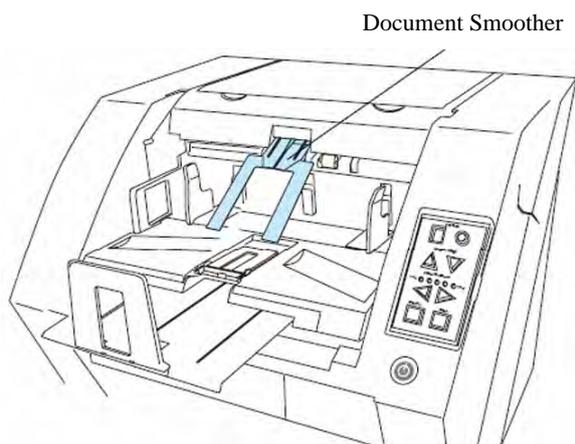
3.1.8 Using the Document Smoother

The ejected documents may not stack correctly when the stacker angle is adjusted to the tilting forward setting (Section 3.1.7), or when scanning documents of different sized pages. If that is the case, install the Document Smoother as described below. The Document smoother will suppress the splattering of ejected pages so they will stack neatly.

1. Insert one of the tabs of the Document smoother into the mounting hole at the top of the Stacker as shown below.



2. While bending the center part of the Document Smoother, insert the other tab into the mounting hole on the opposite.

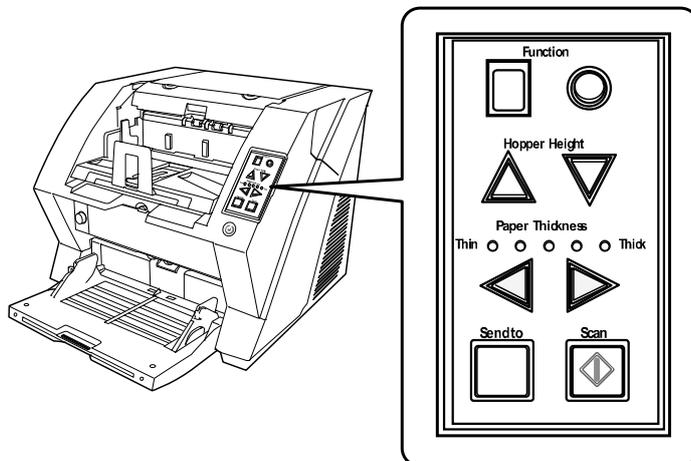


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	44/327		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai					

3.1.9 Adjusting the Paper Thickness

- When multifeeds, mis-picks, or paper jam occur frequently, adjust the paper thickness by using the [Paper Thickness] button on the operator panel. (Under normal circumstances, use the default setting.)

Set the paper thickness on the Operator Panel.



When pressing the  button, the scanner is set for one level thicker document.
When pressing the  button, the scanner is set for one level thinner document.

Five (5) steps of document thickness are selectable.

- Thin: Prevent picking failure and paper jam
- Medium thin
- Medium: Documents with thickness of 52 through 127 g/m² (13.9 to 34 lb) <Default setting>
- Medium thick
- Thick: Prevent multifeeding

Notes:

- Multi-feeds, mis-picks, and paper jams can occur due to dirty or worn consumables or rollers, and improper paper preparation. Please make sure that consumables are clean and not worn and paper is prepared properly before adjusting the paper thickness.
 - When multifeeds occur frequently, adjust to a thicker value.
 - When mis-picks or paper jams frequently occur, adjust to a thinner value.
- If the problem was not solved in the method above, adjust the [Paper Thickness] button to default setting once, and then operate the variable mechanical module of pick-pressure in the procedure below.

Open the Pre-Imprinter cover. Then, the variable mechanical module of pick-pressure will appear.

The pick-pressure is changed using the adjusting screw.

- For users who often use thinner documents, adjust the screw to the level “-” (minus).
- For users who often use thicker documents, adjust the screw to the level “+” (plus).

If more of the improvement is necessary, adjust by the [Paper Thickness] buttons.

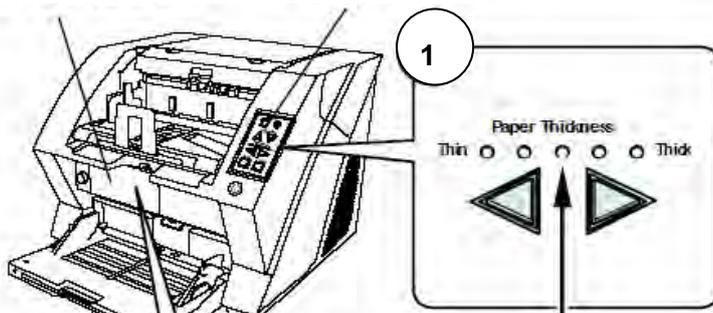
: Press this button to prevent paper jam and Pick-mistake.

: Press this button to prevent multi-feed.

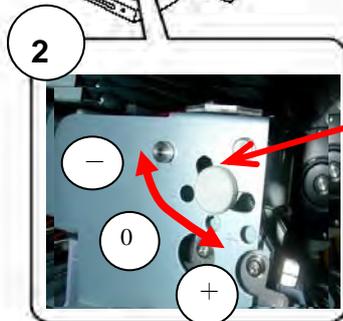
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	45/327	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.		T.Anzai			

Pre-Imprinter cover

Operator Panel



1. Default setting



2. Adjust the screw.

– (minus): Pick pressure is lowered to prevent paper jam and multi-feed

0 (zero): Default setting at the factory

+ (plus): Pick-pressure is raised to prevent pick-mistake

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	46/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

3.1.10 Scanning Documents

When scanning documents, normally you need to run the scanner driver using the application software. The following shows the procedure for scanning documents using the “ScandAll 21” application (simply called “ScandAll 21” from now on)

The procedure differs depending on the application being used. When you use an application other than ScandAll 21, refer to the manual that is included with the application.

1. Load the documents on the Hopper.

2. Adjust the stacker table to the document size.

Notes:

- When loading long documents on the Hopper, extend the stacker extension.
- When loading short documents on the Hopper, adjust the stacker length with the small stopper.

3. Start up ScandAll 21.

From the [Start] menu, select [Program]-[Scanner Utility for Microsoft Windows] – [ScandAll 21]. This opens ScandAll 21.

4. Select the scanner to use.

(1) Select [Select Source] from the [Scan] menu.

→ The [Select source] dialog box appears.

(2) Select [FUJITSU Fi-5900Cd] (for TWAIN 32 V8, [FUJITSU TWAIN 32]). Then click [Select].

5. Click the [Scan to view] on the tool bar.

→ The [TWAIN Driver] dialog box (screen for setting scanning conditions) appears.

6. Set the scan resolution, document size and other scanning parameters, and click the [Scan] button.

→ The image of the scanned document appears on the ScandAll 21 screen.

For details on ScandAll 21 function and operations, refer to ScandAll 21 Help.

3.1.11 Starting Scanning with Button

Pressing the **Scan** / **Send to** button can start an application previously linked.

However, you need to set the application for **Scan** and **Send to** button referring to Section 3.1.14.

1. Load the documents on the Hopper.

Refer to Section 3.1.6 for how to load the documents.

2. Adjust the stacker table to the document size.

Refer to 3.1.7 for how to adjust the stacker table.

3. Press the **Scan** or **Send to** button.

When using the **Scan** button, press the button.

When using the **Send to** button, you can set from [Send to 1 to 9] of nine (9) kinds of settings. Each pressing the [Function] button increases the number of Function Number display as 1 → 2 → 3... Set the number that links the application software you want to use for scanning and press the **Send to** button.

→ The application previously set for the number is started.

Note: If the **Send to** button is pressed when “C” is displayed in the Function Number Display, the Software Operation Panel will start (Section 3.4.1).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE 47/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.1.12 Feeding Documents Manually

Besides the “Automatic Feed Mode” which automatically scans the document set on the Hopper, the scanner can also scan documents in the “Manual Feed Mode”.

In addition, the “Manual Feed Mode” is divided into 2 types:

<1> Single Feed: Only one sheet is manually fed and scanned. This is suitable for

- thick paper, envelopes and folded paper and other types of documents that are difficult to scan using Automatic Feed Mode. (In case of folded paper, make the folding line as the leading edge).
- reducing the load on the Hopper.
- making sure a certain page is scanned.

<2> Continuous Feed: Multiple sheets of document are manually fed one at a time and continuously scanned. This is suitable for

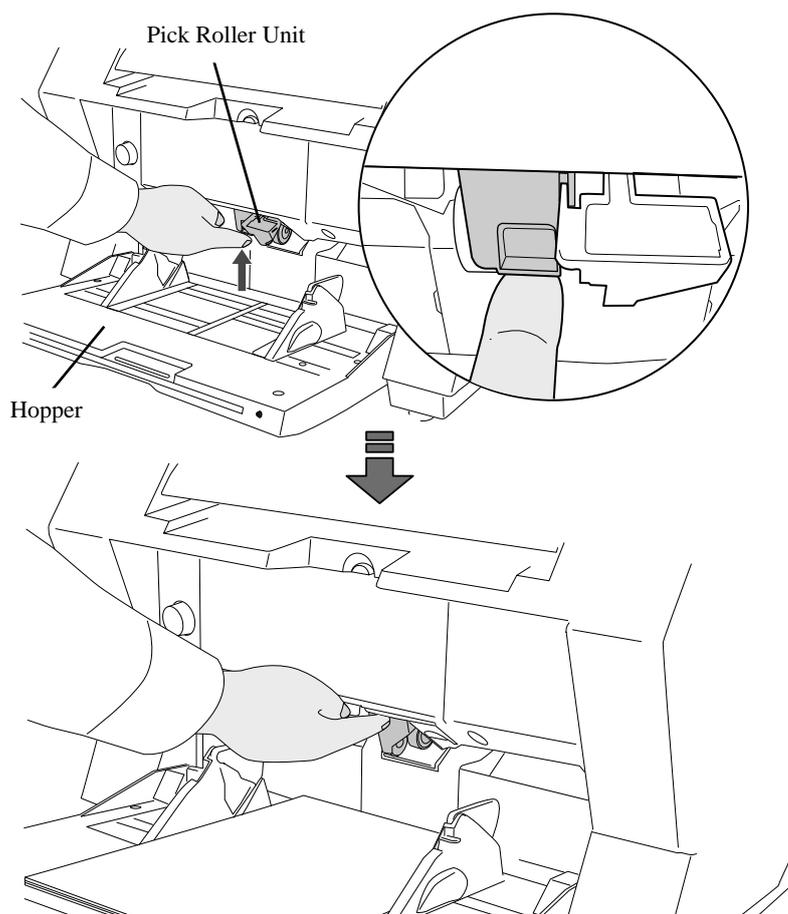
- manual feed, even if multiple sheets are mistakenly fed, the scanner will scan one at a time.
- selectively scanning a stack of document.
- making sure certain pages are scanned.

The procedure is described below.

■ Single Feed

1. Lift up the Pick roller unit.

Lift up the small plate on the left side using your finger.



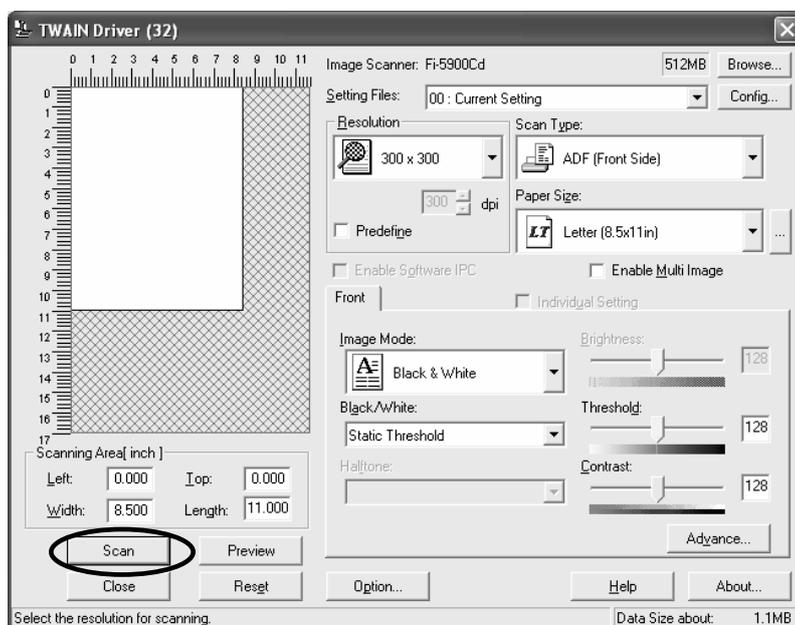
- ➔ The Pick roller unit will click into place.
- ➔ The Hopper will move up to the manual feed position.

Notes: - If there is any document loaded on the Hopper, remove it before adjusting.

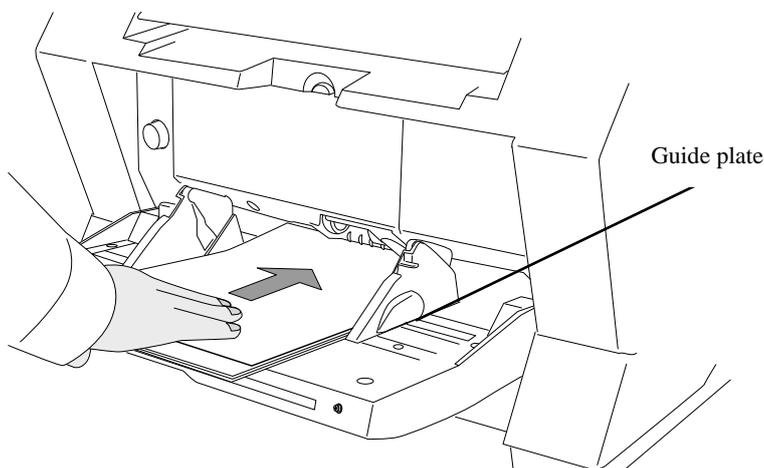
- Be careful not to get your fingers or anything caught in the mechanism when the Hopper table moves up.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	48/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

2. Place documents face-up at the center of the Hopper table.
At this moment, do not stick the top edge of the document against the inner side of the Hopper, instead set them a bit apart.
3. Start the application and display the scanner driver screen.
Set the scanning condition.
For the information about how to run the scanner driver, refer to Section 3.1.10.
4. Start scanning.
When using the TWAIN driver, click the [Scan] button on the following screen.



5. Load the documents towards the back of the Hopper.
When more than one sheet is loaded, only one on the top of the stack will be fed.

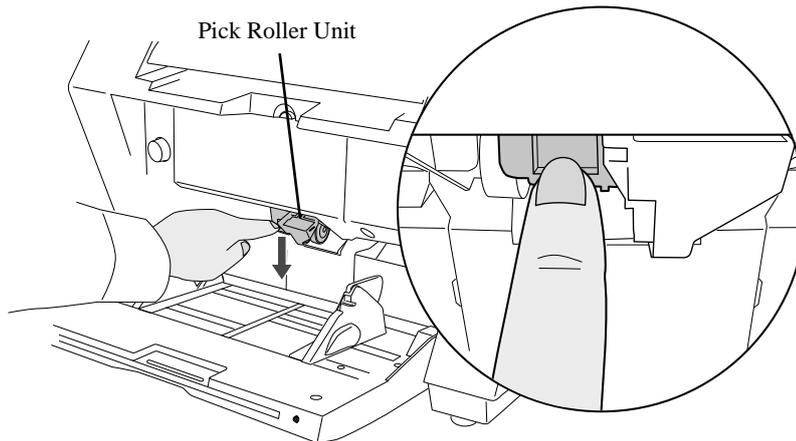


The documents is picked up and ejected onto the stacker after scanning.

6. Repeat the procedure 5 until all the documents are scanned.
After a certain time period of inactivity, the scanner will automatically recognize it as “no document” and stop scanning.

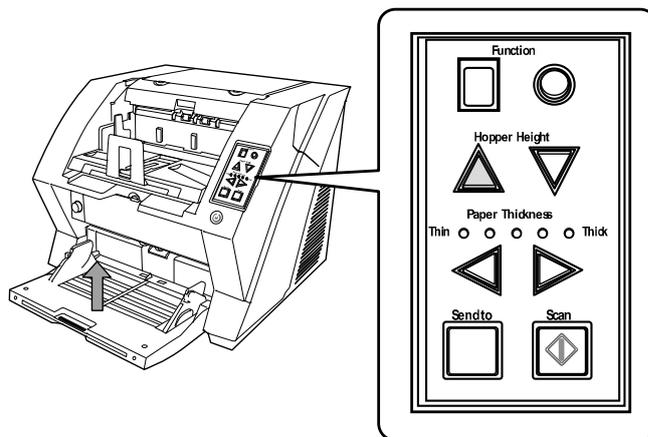
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	49/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai							

- To deactivate “Manual Feed Mode” (Single Feed), return the Pick roller unit to its original position.
Flip down the small plate on the left using your finger.



Continuous Feed

- Open the Hopper if it is closed.
Refer to Section 3.1.2.
- Press down the Hopper Height Button (Δ) on Operator Panel for more than 3 seconds.



➔ Hopper will move up to the manual feed position.

Notes:

- Be careful not to get your fingers or anything caught in the mechanism when the Hopper table moves up.
- To deactivate the “Manual Feed Mode” (Continuous Feed) in the middle of an operation, press down the Hopper Height Button (∇) on the Operator Panel for more than 3 seconds.

- Place documents face-up at the center of the Hopper table.

At this moment, do not stick the top edge of the document against the inner side of the Hopper, instead set them a bit apart.

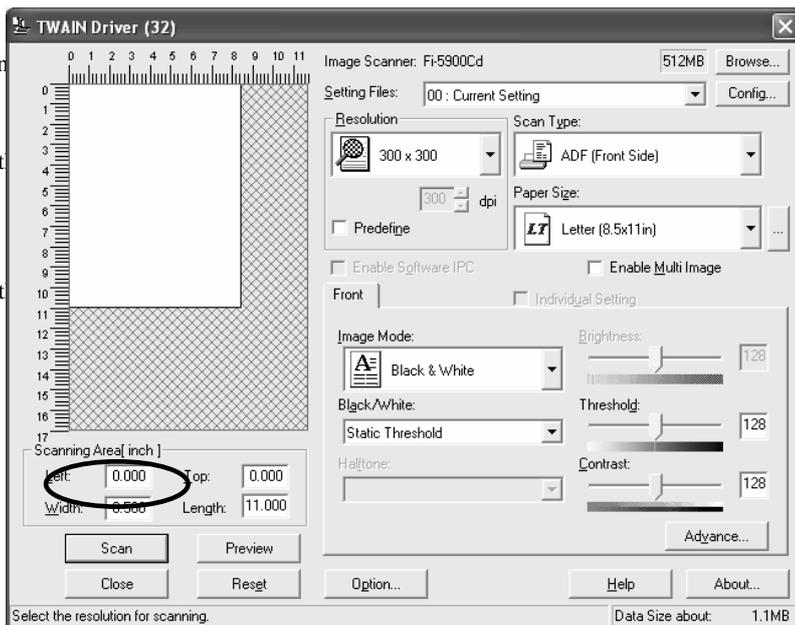
- Start the application and display the scanner driver screen.

Set the scanning condition.

For the information about how to run the scanner driver, refer to Section 3.1.10.

- Start scanning.

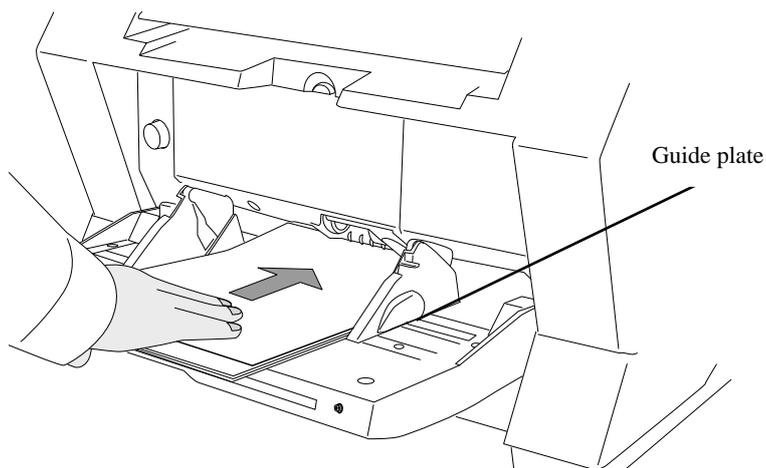
When using the TWAIN driver, click the [Scan] button on the screen on the right.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	50/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

6. Load the documents towards the back of the Hopper.

When more than one sheet is loaded, only the one on the top of the stack will be fed.



The documents is picked up and ejected onto the stacker after scanning.

Note: In "Manual Feed Mode" (Continuous Feed), even if multiple sheets are mistakenly fed, the scanner will scan only one sheet at a time.

7. Repeat the procedure 6 until all the documents are scanned.

➔After a certain time period of inactivity, the scanner will automatically recognize it as "no document" and stop scanning.

8. To deactivate the "Manual Feed Mode" (Continuous Feed), press down the Hopper Height Button (▽) on the Operator Panel for more than 3 seconds.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	51/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.1.13 How to use the Scanner Driver

To scan the documents, a scanner driver and the application software that supports the driver are required. There are two drivers, “FUJITSU TWAIN 32 Scanner Driver” in compliance with the TWAIN regulation and “FUJITSU ISIS Scanner Driver” in compliance with the ISIS regulation, come with fi-5900C.

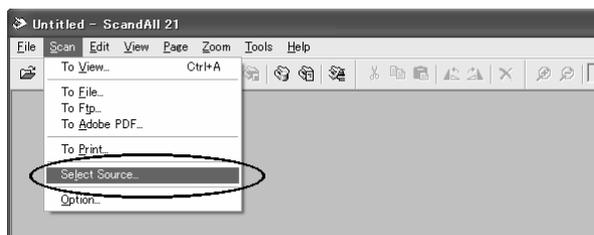
Procedure for Basic Scanning Operation (in case of FUJITSU TWAIN 32 Scanner Driver as an example)

1. Start up the application.

From the [Start] menu, select [Programs] - [Scanner Utility for Microsoft Windows] and click [ScandAll 21].

2. Select your scanner on the window below.

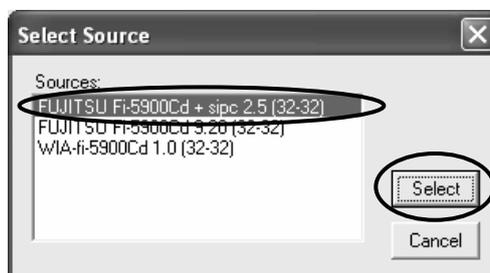
Select [Select source] from the [Scan] menu.



3. Select the scanner to use, then click the [Select] button.

Select

- [FUJITSU FI-5900Cd] for FUJITSU TWAIN 32 V9,
- [FUJITSU TWAIN 32] for FUJITSU TWAIN 32 V8

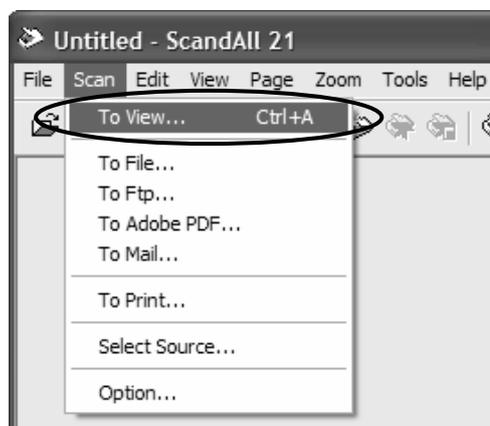


4. Load the documents on the scanner.

For details on loading documents, refer to Section 3.1.6.

5. Open the TWAIN Driver window.

Select [Scan To View] from the [Scan] menu.



6. Configure settings for scanning and click the [Scan] button.

➔ The images of scanned documents are displayed on the [ScandAll 21] window.

Depending on the settings of the application software, images may not be displayed.

For details, refer to the documentation or Help file of your application.

Ex) When you select [To File...] from the [Scan] menu of ScandAll 21, images of scanned documents are not displayed on the window.

7. Save the scanned images.

Select [Save As] from the [File] menu to save the scanned images.

If you wish to start another scanning, return to step 4.

8. End the application.

Select [Exit] from the [File] menu.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	52/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

3.1.14 Before Using **Scan**/**Send to** Button

By setting the link of the application software to the **Scan** button and **Send to** button, you can launch the linked application by simply pushing the button.

■ For Windows 98, Windows Me, Windows 2000 and Windows XP:

1. Select [Control panel] from the [Start] menu.
2. Select [Property] from [Scanner and Cameras].

Note: For Windows XP, when the control panel is displayed in “Category” mode, select [Printer and other hardware] and then click [Scanner and camera].

3. Display the “fi-5900C” properties.

For Windows Me and Windows XP, right-click the “fi-5900Cd” icon.

For Windows 98 and Windows 2000, double-click the “fi-5900Cd” icon.

4. Select the [Event] tab.

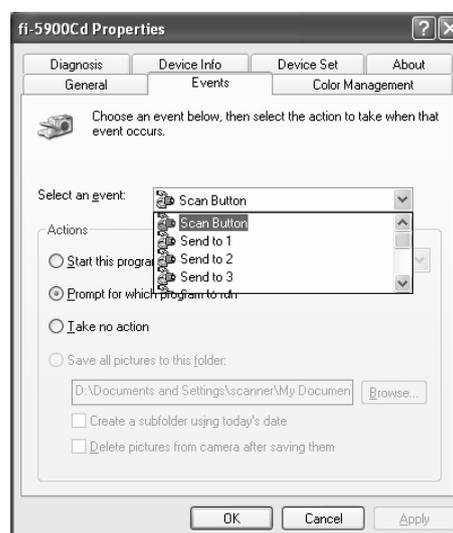
5. Select the event to launch the application.

For Windows XP, select event to be performed by the application from the [Select event] menu.

With this function, the next events can be selected.

Scan button (When clicking the **Scan** button)

Send to 1~9 (When clicking the **Send to** button)



6. Select the application executed by the event.

For Windows XP, select [Performing selected program] under [Performing] and then select the application to be processed.

7. Click OK.

■ For Windows 95 and Windows NT 4.0:

1. Click the “FUJITSU Scanner Control Center” icon and right-click to open [Option].
2. Select the [Common] tab.
3. Select the application to be started by the event.
4. Click [OK].

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE	53/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai			

3.1.15 Resuming from Power Saving Mode

Power saving mode saves the power consumption of the scanner while the power is turned on. When the scanner is left without operation for 15 minutes or more (factory initial setting), it automatically enters the power saving mode.

When the scanner entered the power saving state, the LCD indication of the Operator panel becomes off and the blue LED lamps for Power button and Paper Thickness keep lighting.

If you want to resume the scanner from the power saving mode, take of these actions below.

- Set documents on the Hopper.
- Press any button on the Operator Panel (except the Power button*).
 - * If you press the power button for two seconds or longer, the power is turned off.
- Execute any command from the scanner driver screen in the PC.

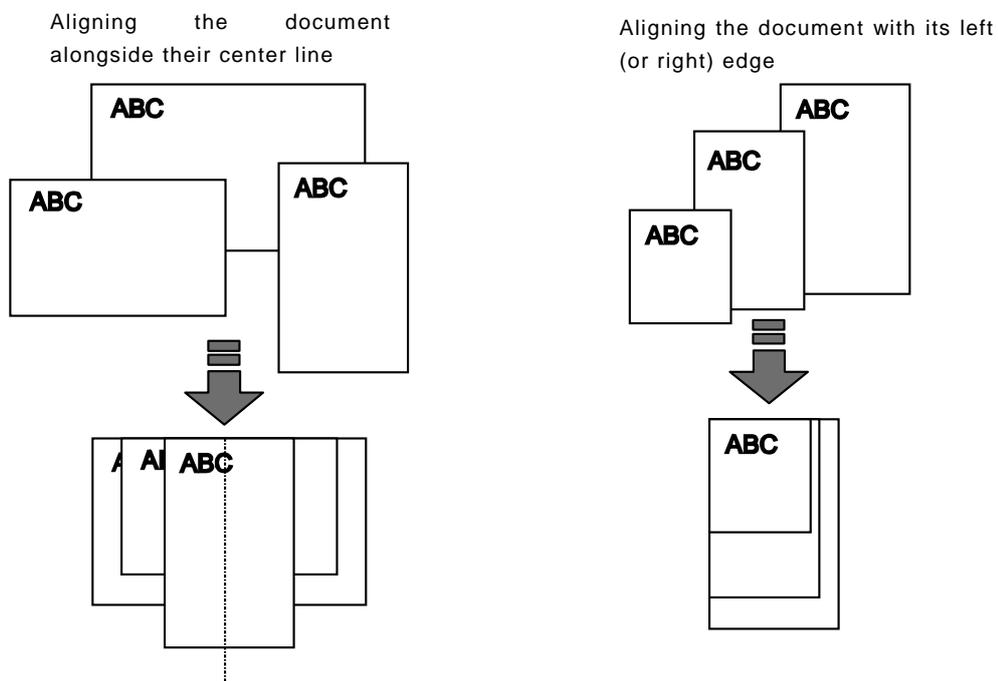
The waiting time for entering the power saving mode can be set in a range from 15 to 55 minutes in steps of 5 minutes.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	54/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.1.16 Scanning Documents with Different Widths

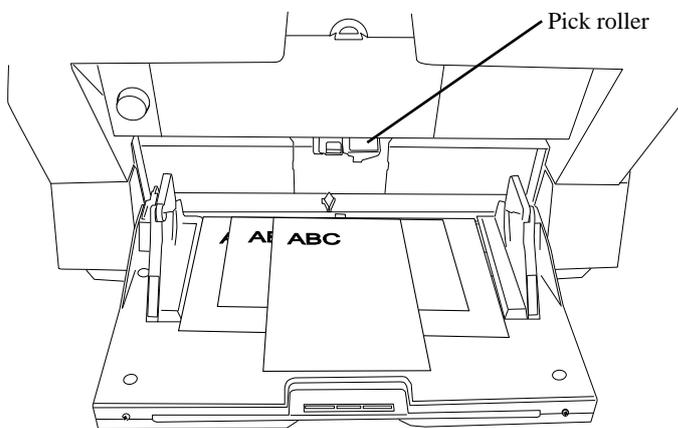
When you scan a batch of documents with different widths, follow the instruction below.

1. Align the leading edge of the documents.

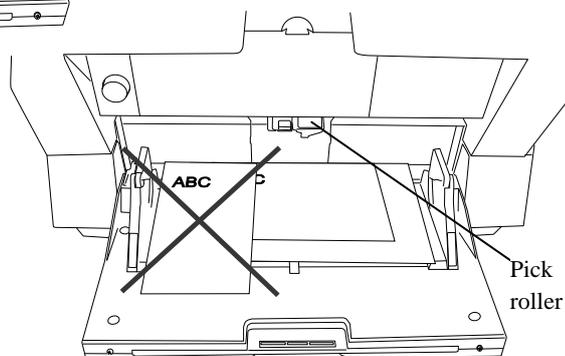


This section describes the procedure to align the document alongside their center line. For the procedure to align the document with its left (or right) edge, refer to “(2) Setting the document off center on Hopper” in Section 3.1.6.

2. Load the documents on the center of the Hopper.

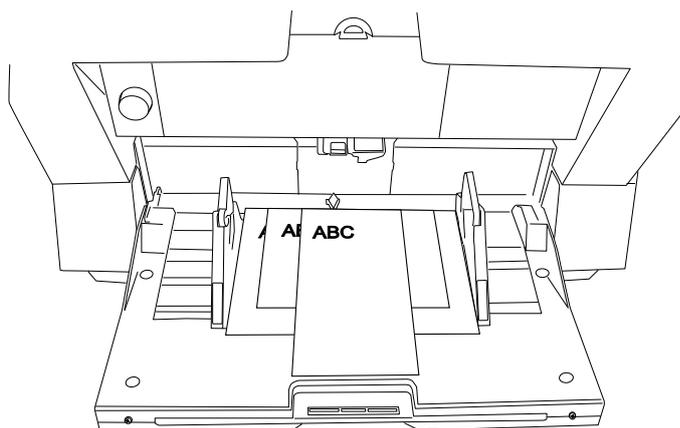


Note: Load the documents making sure that each document is under the pick roller. (If the documents are not placed below the Pick roller, mis-feeds will occur.)



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL						
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.								
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	55/327					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai								

3. Align the side guides to the width of the widest document.



4. Align the stacker's position. (Refer to Section 3.2.7.)

5. Access the scanner driver from the scanning application.

6. Configure the scanning parameters as listed below..

For the TWAIN driver

Paper size: (Main display)

Set the width of the widest, and the length of the longest document.

Automatic size and skew detection: ([Option] screen - [Rotation] tab)

Select automatic paper size detection.

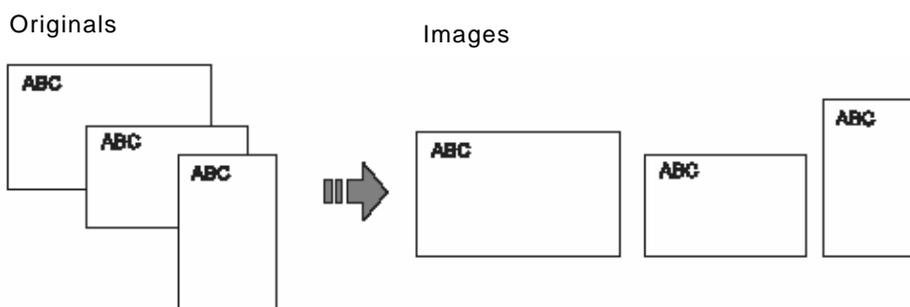
For the ISIS driver

Cropping: (on the [Main] tab)

Select [Automatic].

7. Scan.

→ The images of each document will be generated according to their size and displayed on the screen.



Notes:

- When scanning mixed width documents, skewing may occur because the Hopper Side guides do not touch every page. We recommend you to enable “Automatic Page Size Detection”.
- Multi feed Detection by length cannot be used together with “Automatic Page Size Detection”.
- Refer to Section 1.2.8 for details on scannable mixed size documents.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE	56/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai			

3.2 Cleaning

This section describes how to clean the scanner.



WARNING

Take care not to pinch your fingers inside the ADF.

The glass inside the ADF becomes hot during operation. Be careful not to burn yourself.

3.2.1 Cleaning area and Cleaning frequency

The following parts are required for cleaning every 10,000 scans.

Cleaning part
Pad
Pick rollers
Brake roller
Separator rollers
Feed roller (lower)
Pinch roller (upper)
Transport path
Glass
Skew-detection sensor
Document Sensors

Notes:

- The scanner must be cleaned more frequently if you scan any of the following types of sheets:

- Coated paper
- Documents that are almost completely covered with printed text or graphics
- Chemically treated documents such as carbonless paper
- Documents containing a large amount of calcium carbonate
- Documents filled in with pencil

- Do not use aerosol sprays to clean the scanner. The air from the spray may cause dirt and dust to enter the scanner mechanism and resulting in scanner failure or malfunction or image quality problems.

- You must clean the following area more thoroughly when you use the fi-590PRF or the fi-590PRB Imprinters (option). The imprinter ink tends to stick to the document transport path.

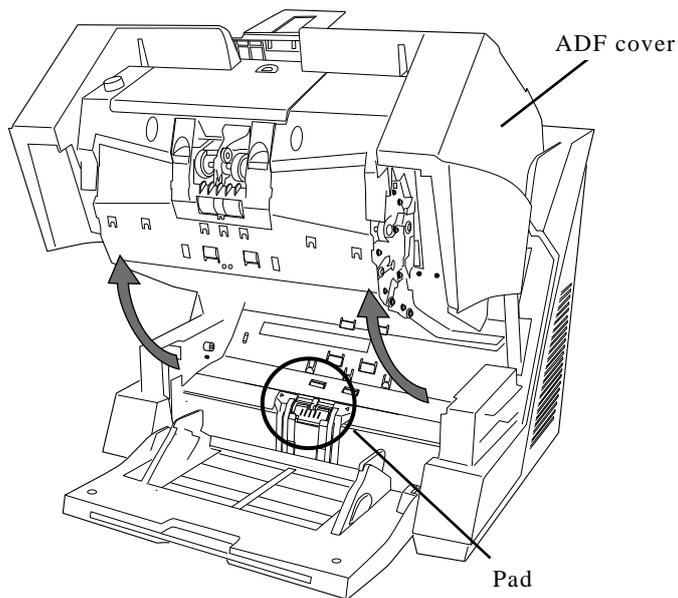
- Removable sheet guide
- Glass sheet guide
- Feed rollers
- Pinch rollers

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	57/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

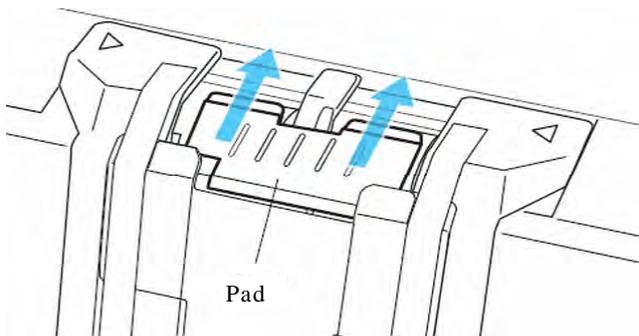
3.2.2 Cleaning the Pad

1. Open the ADF cover.

For details, refer to Section 3.1.3.



2. Wipe the Pad with a lint-free cloth, moistened with ethyl alcohol or isopropyl alcohol (more than 99%), in the direction indicated by the arrows.



3. Close the ADF.

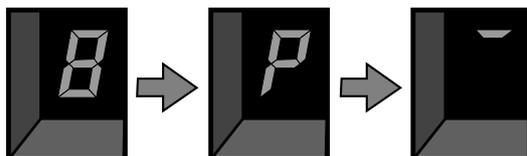
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	58/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

3.2.3 Cleaning the Rollers (with the cleaning sheet)

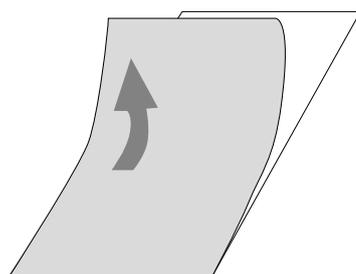
Cleaning sheet P/N: CA99501-0016 04

Use the cleaning sheet to clean the upper and lower ADF transport path and the rollers.

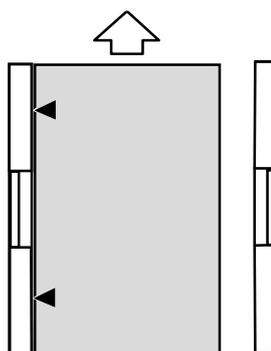
1. Make sure the scanner is off.
2. Open the Pre-Imprinter cover.
3. While pressing the Scan button, press the power button  to switch on the scanner.
→ Keep pressing the Scan button until the function number display changes as shown below.



4. Let go of the Scan button.
→ The scanner will enter the test mode.
5. Close the Pre-Imprinter cover.
6. Adjust the Hopper Side guides to their widest position.
7. Pull out the stacker extension and adjust it to the length of the cleaning sheet.
8. Remove the protective paper from the cleaning sheet. (The protective paper is the yellow sheet.)



9. Place the cleaning sheet with its adhesive side facing up on the Hopper table, aligning it with the left side guide as shown in the illustration below.

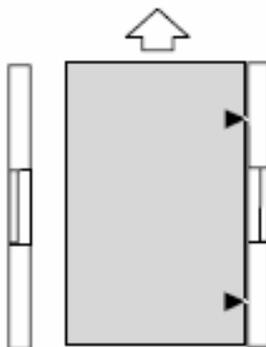


10. Press the Scan button 3 times. (Press twice if the Imprinter is not installed) 06
→ The function number display will change as shown below and the cleaning sheet will be fed and ejected into the stacker.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	59/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

11. Place the same cleaning sheet with its adhesive side facing up on the Hopper table, aligning it with the right side guide, as shown in the illustration below.



12. Press the **Scan** button 3 times. (Press twice if the Imprinter is not installed.) 06
 →The cleaning sheet will be fed and ejected into the stacker.
13. Place the same cleaning sheet with its adhesive side facing down on the Hopper table, aligning it with the left side with the side guide.
14. Press the **Scan** button 3 times. (Press twice if the Imprinter is not installed.) 06
 →The cleaning sheet will be fed and ejected into the stacker.
15. Place the same cleaning sheet with its adhesive side facing down on the Hopper table, aligning it with the right side with the side guide.
16. Press the **Scan** button 3 times. (Press twice if the Imprinter is not installed.) 06
 →The cleaning sheet will be fed and ejected into the stacker.
17. Press the power button  at least 2 seconds to turn off the scanner.

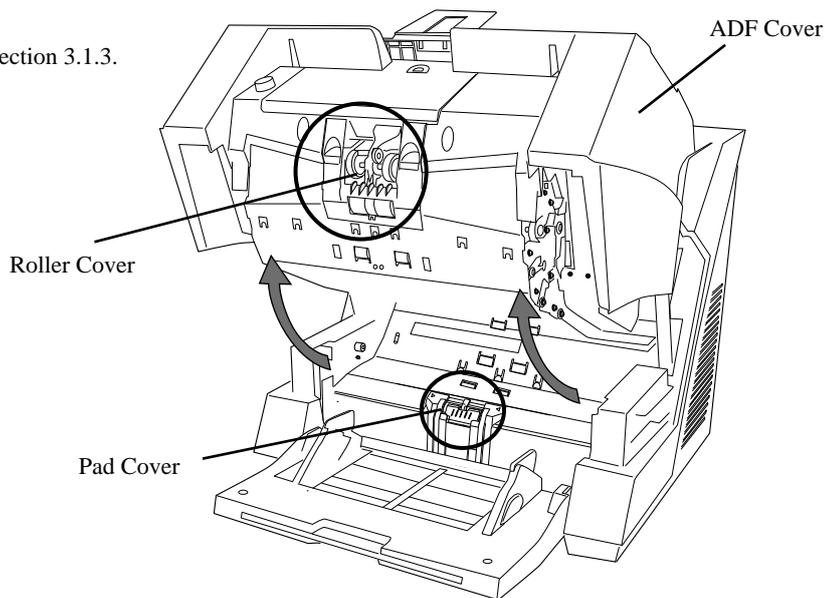
Note:

Cleaning the scanner with the Cleaning Sheets will remove surface paper dust, ink and toner. This does not take the place of more thorough cleaning described later in this chapter.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	60/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

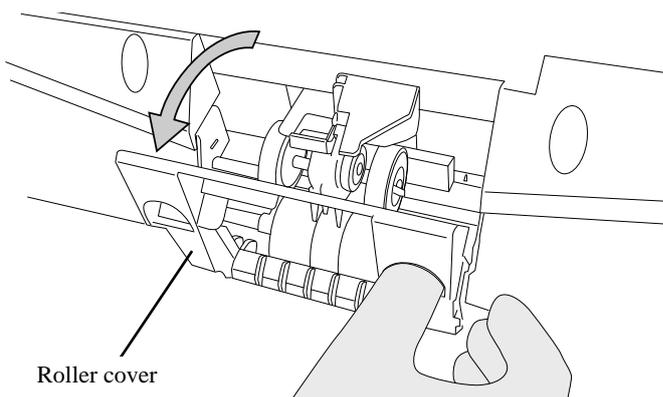
3.2.4 Cleaning the Rollers (with a lint-free cloth)

1. Move the Hopper down to the “low” position if it is set in an upper level. (Refer to Section 3.1.5.)
2. Open the ADF cover.
For details, refer to Section 3.1.3.

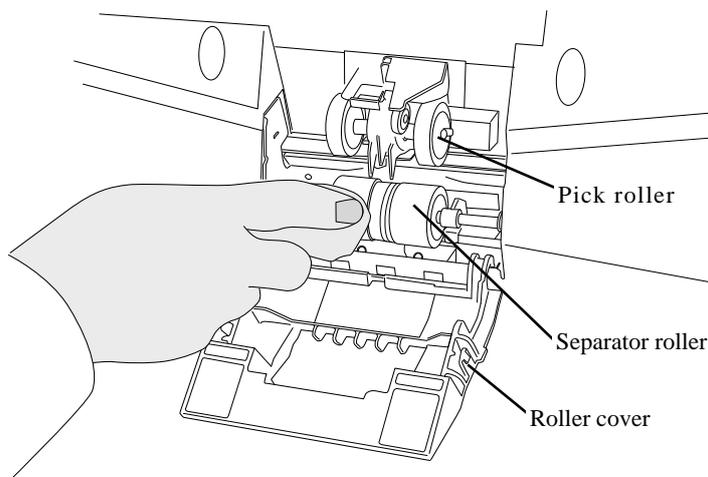


3. Open the roller cover.

Grab the depressions on the left and right sides with your fingers and pull down to open the cover.



4. Clean the Pick rollers and the rubber surface of the Separator rollers using a cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).

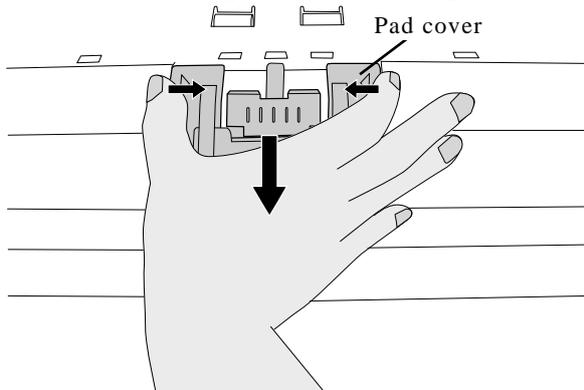


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL						
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.								
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	61/327					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai								

5. Close the roller cover after the cleaning is finished.

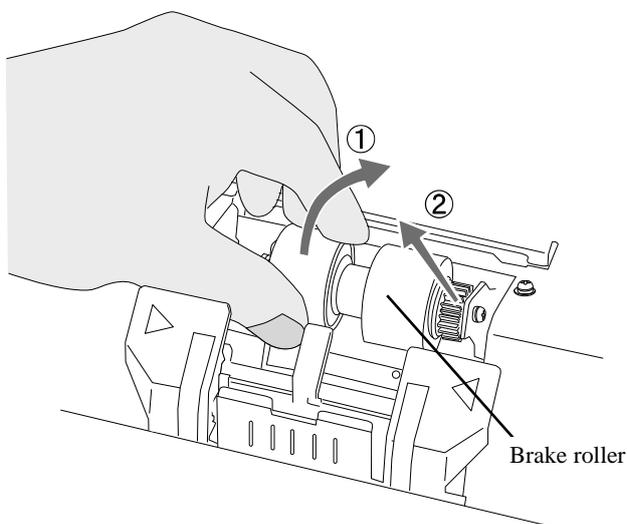
6. Open the Pad cover.

Grab the both sides of the cover, press to the inside and pull down (towards you), as shown in the illustration below.

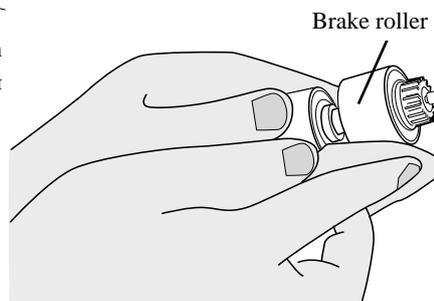


7. Remove the Brake roller.

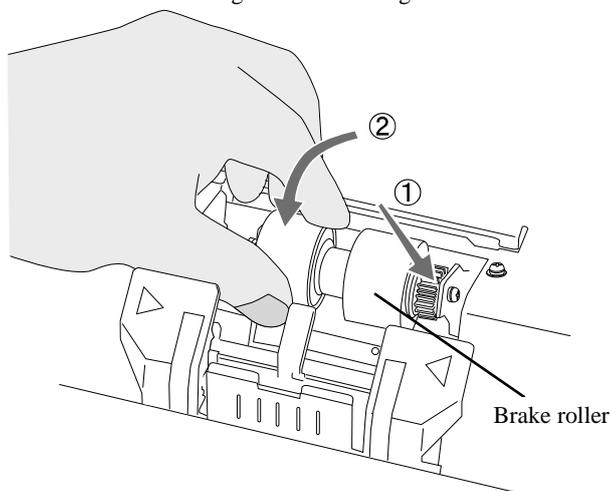
Move the roller slightly to the right, then pull it upwards to remove it, as shown below.



8. Clean the rubber surface of the Brake roller using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).



9. Install the Brake roller again after cleaning.



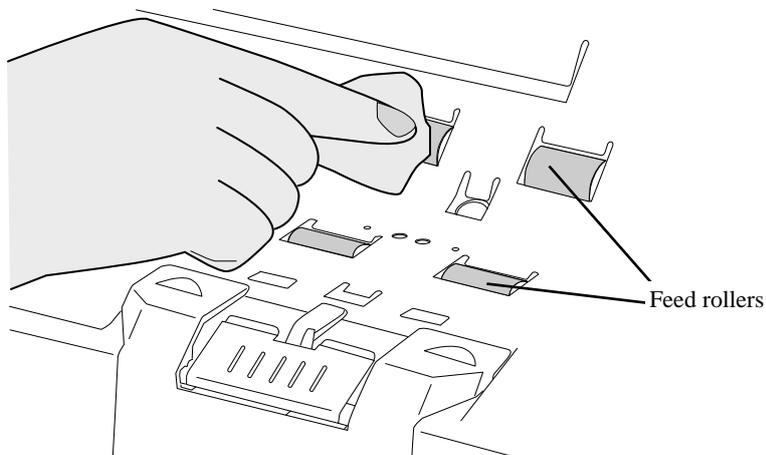
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	62/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

10. Close the Pad cover.

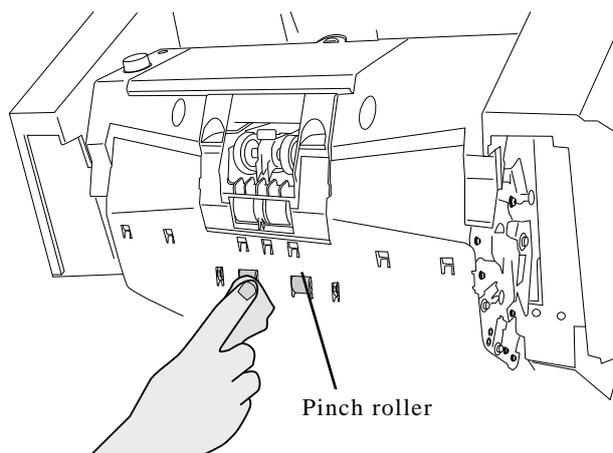
11. Clean the Feed rollers (metal rollers, each set consists of 2 rollers at 9 locations) on the upper side of the lower transport path using a lint-free cloth moistened with ethyl alcohol.

Moistened the rollers with ethyl alcohol and let it sit on the rollers for a few minutes to allow it to loosen the ink and toner.

Take specially care to remove the ink and toner from the rollers. Dirty rollers will effect feeding quality.



12. Clean the Pinch rollers (rubber rollers, each set consists of 2 rollers at 9 locations) on the upper transport path using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).



13. Close the ADF cover.

For details, refer to Section 3.1.3.

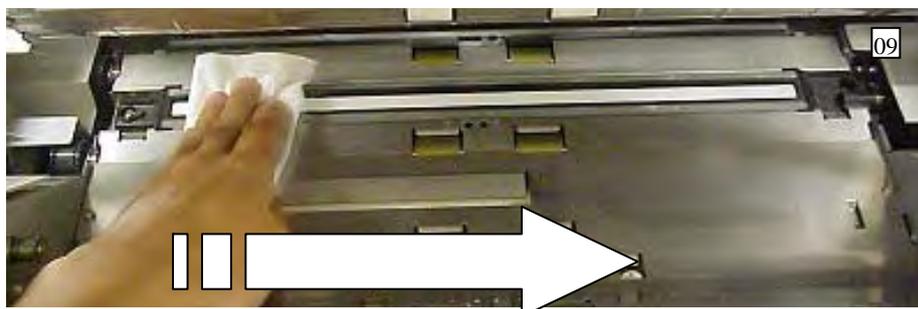
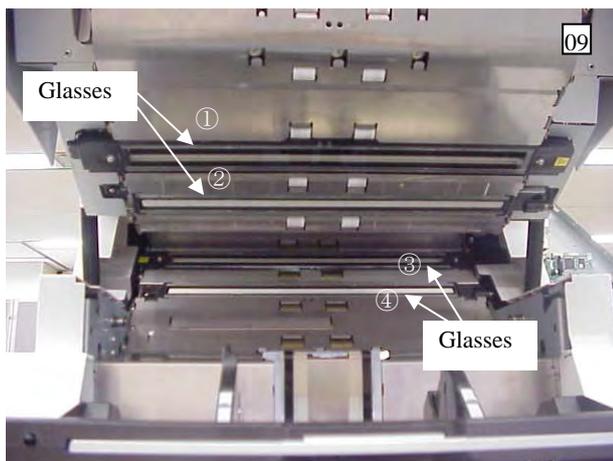
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 63/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

3.2.5 Cleaning the Transport path and the sensors

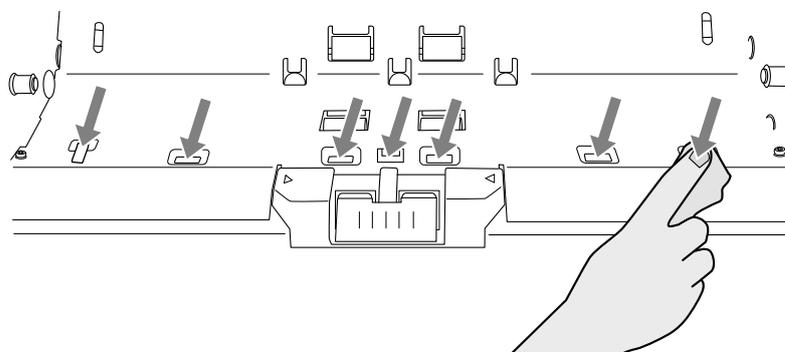
1. Open the ADF cover.
For details, refer to Section 3.1.3.
2. Clean the whole transport path (stainless and glass parts) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).

Notes: 09

- Wipe the four glass areas with a clean cloth in one direction from end to end to sweep dust (Do not reciprocate).
- To avoid uneven cleanliness on the glasses, wipe them thoroughly.
- If the transport path is covered with paper dust, carefully vacuum the excess dust.
- If the glasses are not cleaned completely and wiped with alcohol, be sure to finish with a dry cloth.

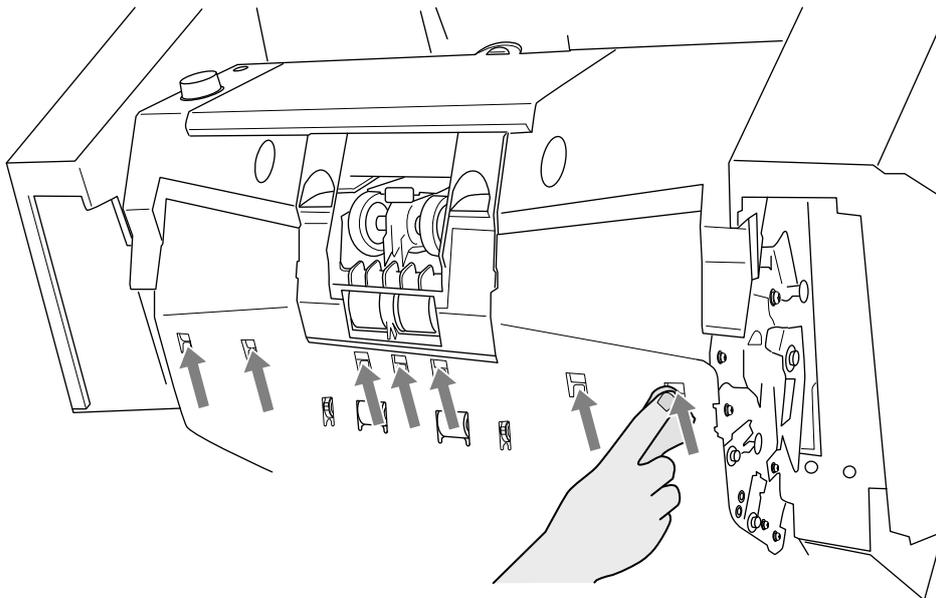


3. Clean the Skew-detection sensors on the lower transport path (7 units at 1 location) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).

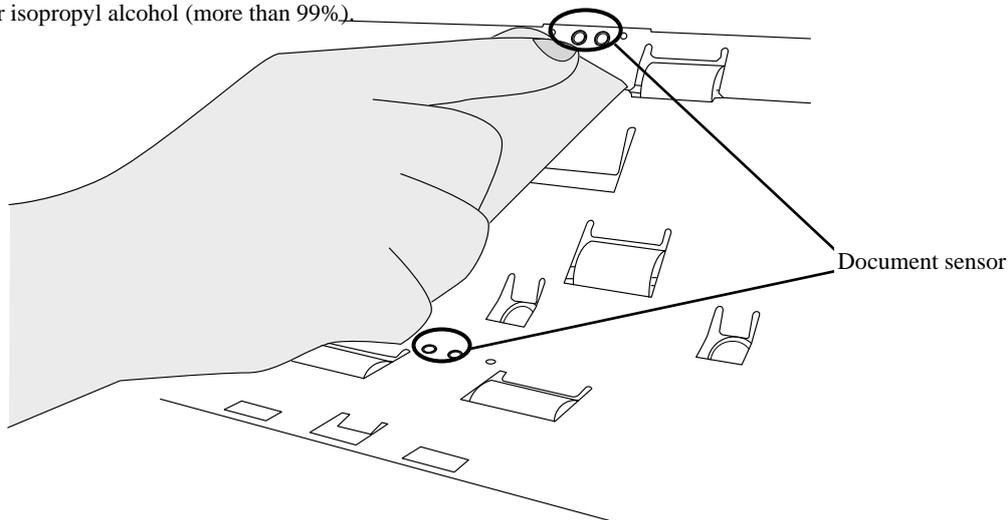


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	64/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

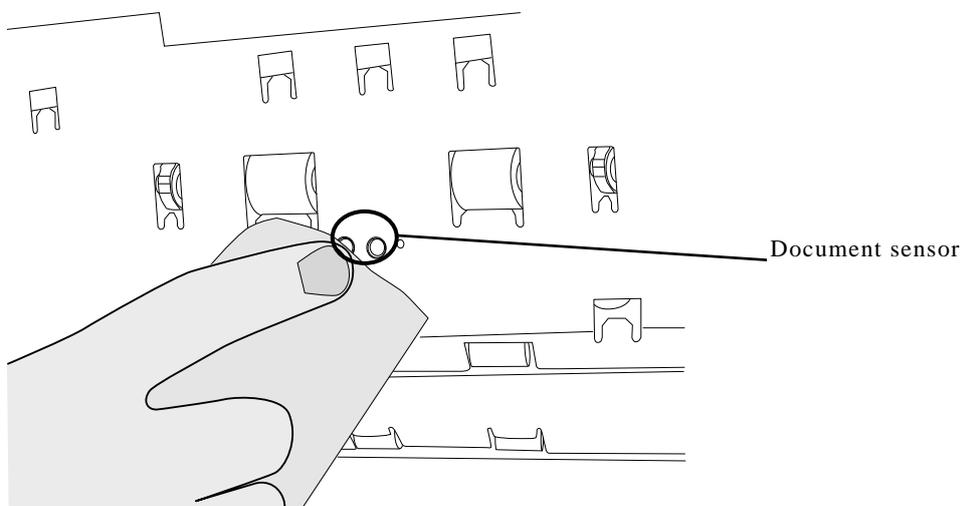
- Clean the Skew-detection sensor on the upper transport path (7 units at 1 location) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).



- Clean the Document sensors on the lower transport path (2 units at 3 locations) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).

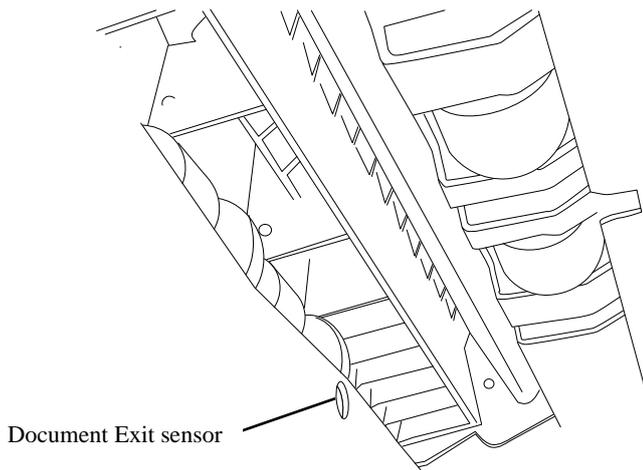


- Clean the Document sensors on the upper transport path (2 units at 3 locations) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL				
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	65/327		
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION						
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.		T.Anzai				

- Clean the Document Exit sensor on the upper transport path (1 unit at 1 location, installed on the Upper unit guide 4 (Roller 9)) using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol (more than 99%).



- Close the ADF cover.
For details, refer to Section 3.1.3.

3.2.6 Cleaning the Feed Rollers and Pinch Rollers

If foreign objects are adhered to the Feed Rollers, the following message may appear depending on the scanner version.

Clean Feed Rollers and Pinch Rollers.
See Operator's Guide for cleaning instructions.
Contact your service engineer if the message does not disappear.

If the message above appears, clean the Feed Rollers and the Pinch Rollers. If the message appears frequently, check the Feed Roller counter (about 3,000,000 sheets), and report the incident to the support center.

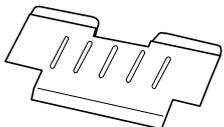
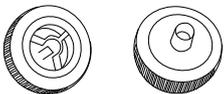
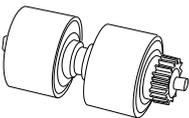
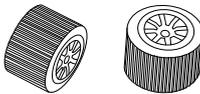
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	66/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

3.3 Replacing Consumables

This section describes how to replace consumables.

3.3.1 Consumables and Replacement Cycle

The following table lists the Part No. and the standard replacement cycle of the consumables. It is recommended that you stock extra consumables before the ones in the scanner reach the end of their service life. The consumables must be replaced periodically. You can check the number of scanned pages for the Pad, the Pick roller, the Brake roller and the Separator roller. For further details, refer to Sections 3.3.2 or 7.1.6.

Part Name	Part No.	Standard replacement cycle	Replacement Procedure
Pad 	PA03450-K014	600,000 sheets or 1 year	Section 3.3.3
Pick Rollers 	PA03450-K011		Section 3.3.4
Brake Roller 	PA03450-K013		Section 3.3.6
Separator Rollers 	PA03450-K012		Section 3.3.5
Print Cartridge 	CA00050-0262		For Imprinter (option) 400,000 sheets (10 characters /sheet)

The replacement cycle is based on the printing on Letter/A4 woodfree paper or wood containing paper documents (64g/m²). It may differ due to paper quality, print density or paper type. The print cartridge is a consumable for the Imprinter option (sold separately). It can be used for the Pre- and Post-Imprinter.

Some parts other than the consumables may need replacement by service engineers depending on scanned document type or its scanning duty.

Note: Use only the consumables specified by PFU LIMITED. Do not use any consumables from other manufacturers.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	67/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.3.2 How to check and reset the Consumables Counter

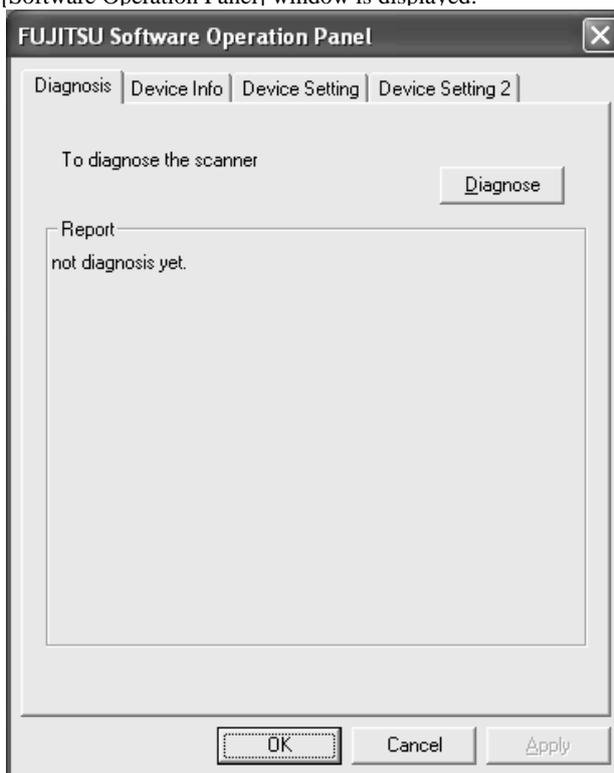
For confirming the page count of the consumables and resetting the counters, use the [Software Operation Panel] on your PC as shown below.

[Checking Consumables]

1. Turn on the scanner and confirm it is connected correctly to your PC.
2. From the [Start] menu, select [All Programs] – [Scanner Utility for Microsoft Windows] – [Software Operation Panel].

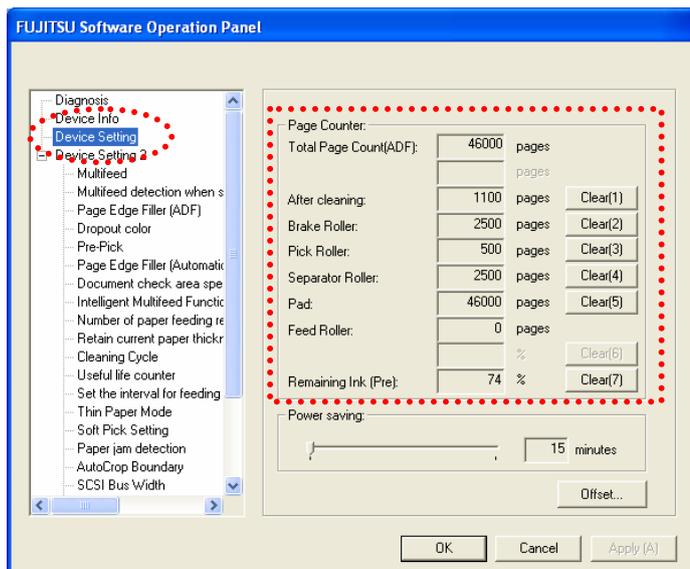


→ The [Software Operation Panel] window is displayed.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	68/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3. Select the [Device Settings] tab.



In this window, the following items can be confirmed.

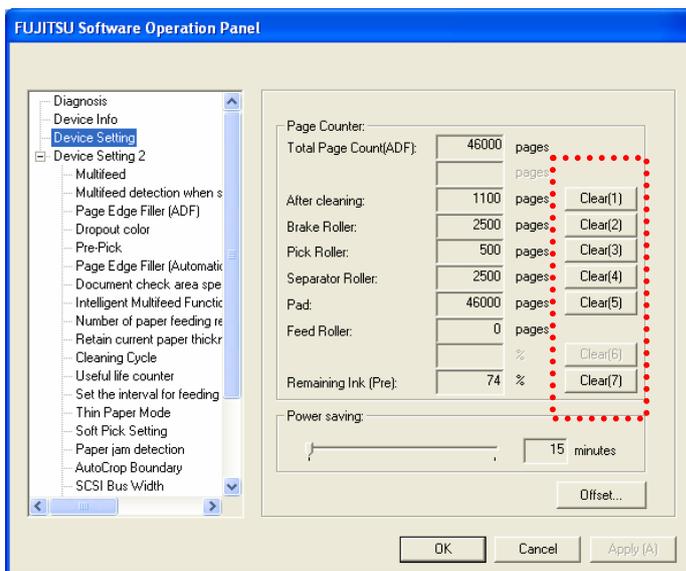
Number of scans (ADF):	The total number of scanned sheets
Pad	The number of sheets scanned since the last time the Pad was replaced.
Brake roller	The number of sheets scanned since the last time the Brake roller was replaced.
Pick roller	The number of sheets scanned since the last time the Pick rollers were replaced.
Separator rollers	The number of sheets scanned since the last time the Separator rollers were replaced.
Remaining ink	The remaining ink of the Imprinter (sold separately) ink cartridge (Only displayed when the Imprinter option is used.)
Feed roller	The accumulated number of sheets fed by the Feed Roller is added depending on the scanner version. 13

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	69/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

[Resetting Consumable Counters]

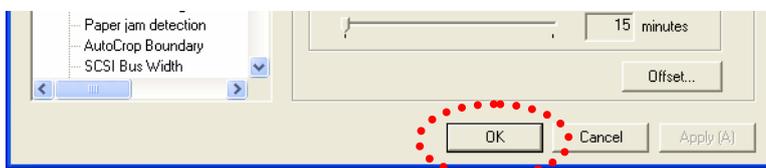
Reset the consumable counter(s) every time you replace consumable(s), following the procedure below.

1. Click the [Clear] button beside the replaced consumable.



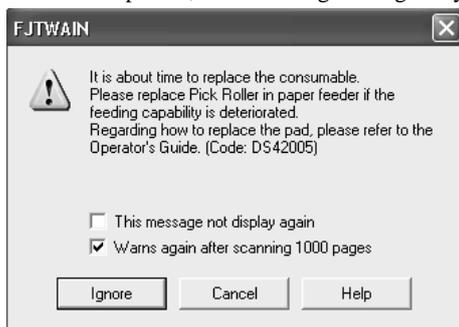
* Background of the Feed roller counter becomes yellow when Feed roller replacement will be required soon or Feed rollers or Pinch rollers are dirty.
Backgrounds of the other counters become yellow when replacement will be required soon.

2. Click the [OK] button on the displayed confirmation message.
→ The value of the counter will be reset to “0”. (“100”, in case of “Remaining Ink”).
3. To close the window of the [Software Operation Panel], click the [OK] button.



[Consumables Replacement Message]

When consumables need to be replaced, the following message may appear while using the scanner.



Replace consumables when this message is displayed.

After clicking the [Ignore] button, this message will disappear and scanning will continue.

Replace the consumable as soon as possible.

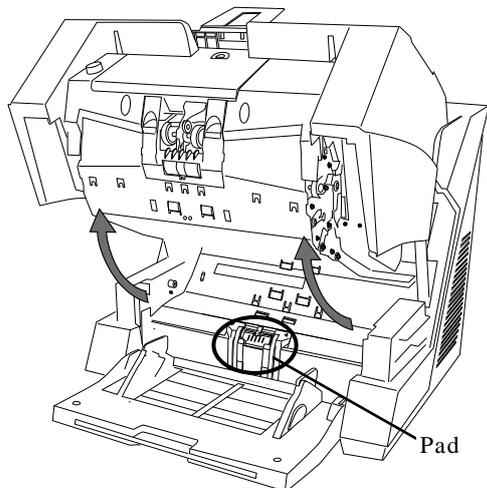
As a default, this message appears again after 1,000 scans. If you do not wish this message to display, click the [This message not display again].

To stop scanning and replace the consumable, click the [Cancel] button.

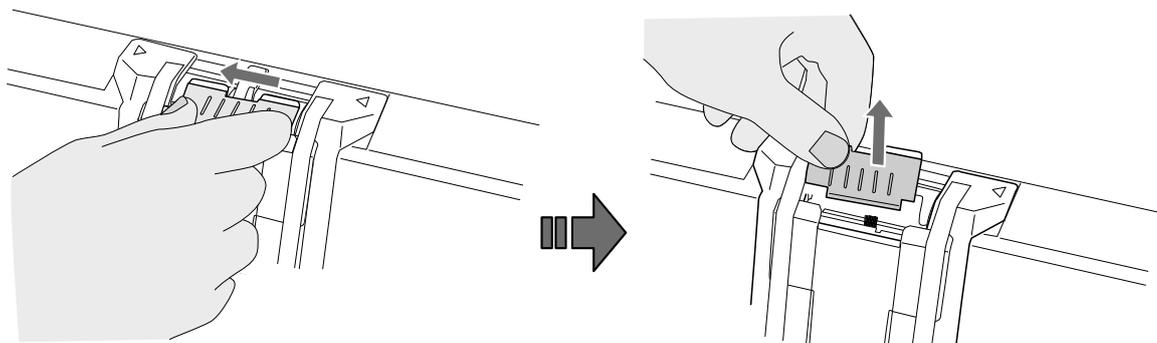
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	70/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

3.3.3 Replacing the Pad

1. Open the ADF cover.
Refer to Section 3.1.3.



2. Move the Pad to the left, then pull it up in order to remove it from the scanner.

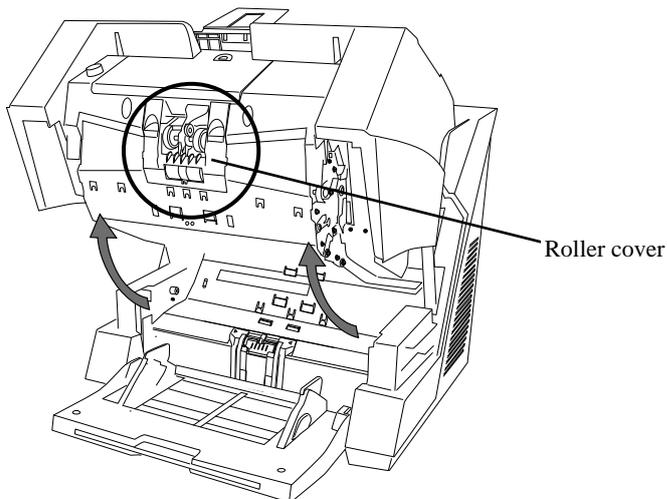


3. Install the new Pad by aligning the pins on the pad with the wide side of the mounting holes and moving the Pad to the right.
4. Close the ADF cover.
Refer to Section 3.1.3.
5. Reset the Pad counter.
Refer to Sections 3.3.2 or 7.1.6.

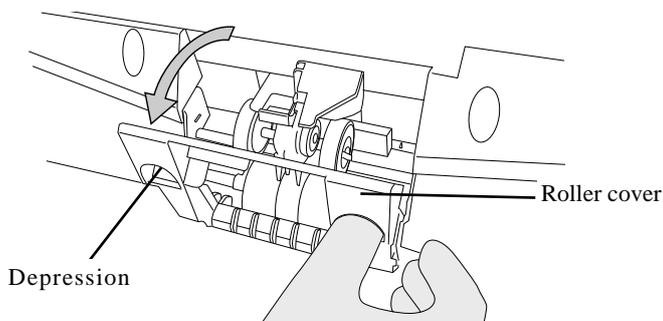
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	71/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

3.3.4 Replacing the Pick Roller

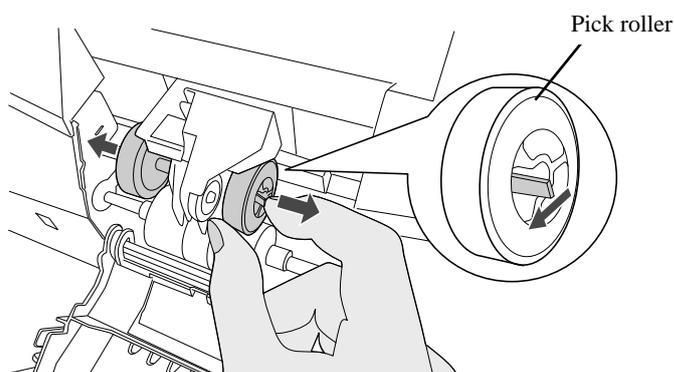
1. Open the ADF cover.
Refer to Section 3.1.3.



2. Open the Roller cover.
Grab the depressions on the left and right sides with your fingers and pull down to open.



3. While out on the tab, pull the Pick rollers (2 rollers, left and right) from the shaft for removal.

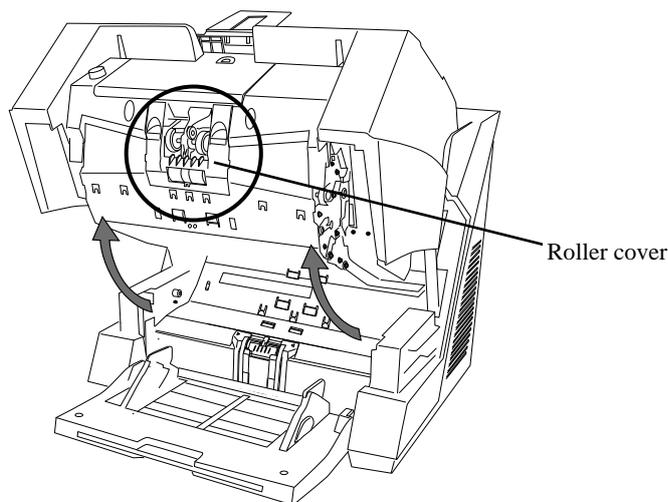


4. Install the new Pick rollers (2 rollers, left and right) making sure the tabs lock in place.
5. Close the Roller cover.
6. Close the ADF cover.
Refer to Section 3.1.3.
7. Reset the Pick roller counter.
Refer to Sections 3.3.2 or 7.1.6.

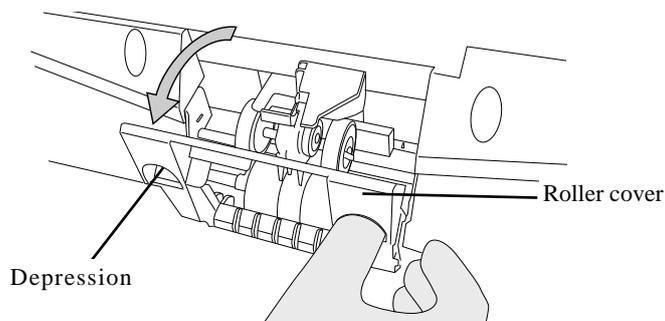
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 72/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	72/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

3.3.5 Replacing the Separator Rollers

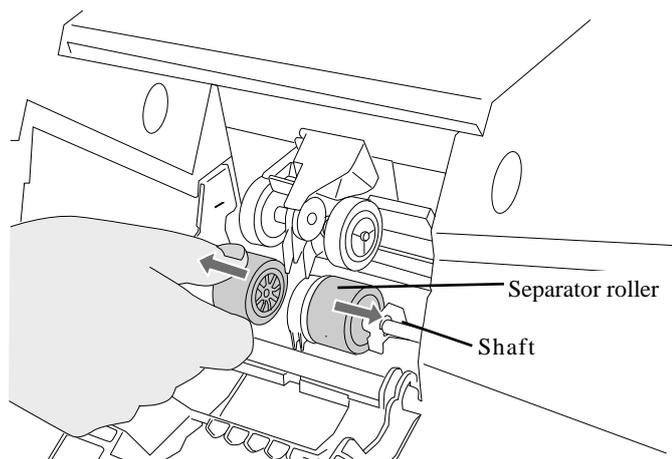
1. Open the ADF cover.
Refer to Section 3.1.3.



2. Open the Roller cover.
Grab the depressions on the left and right sides with your fingers and pull down to open.



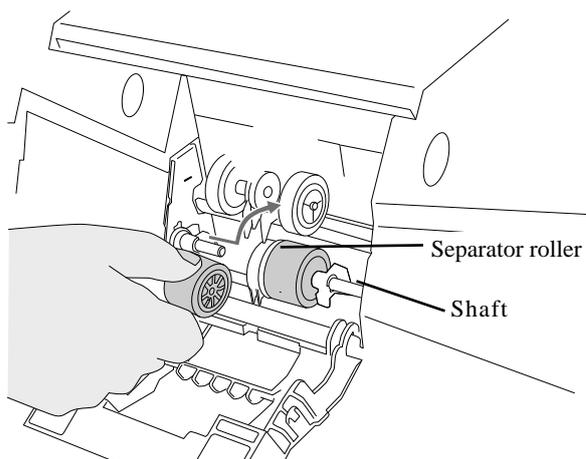
3. Slide Separator rollers (2 rollers, left and right) away from each other along the shafts for removal as shown below.



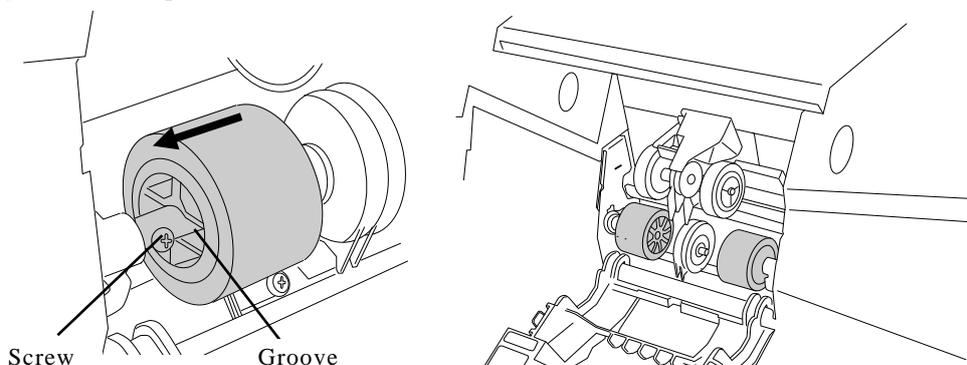
→ The shafts will lock in place.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	73/327		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai					

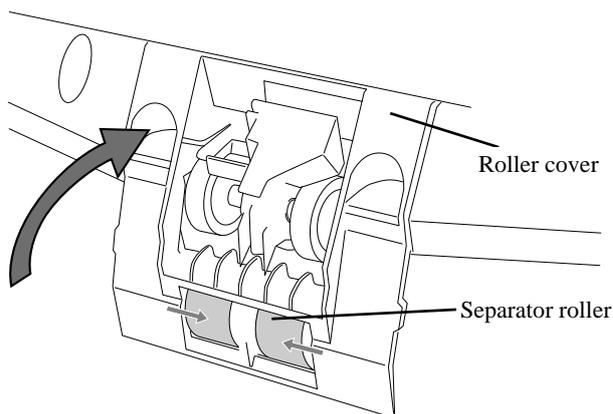
4. Remove the rollers from the shafts by sliding them toward the center of the scanner.
Remove both, the left and the right rollers.



5. Place the new rollers (2 rollers, left and right) on the shafts.
The Separator rollers can only be place on the shaft one way because of the orientation of the holes in the roller.
Align the groove on the Separator roller with the screw on the shaft



6. Close the Roller cover.
→ The Separator rollers will lock in place automatically.

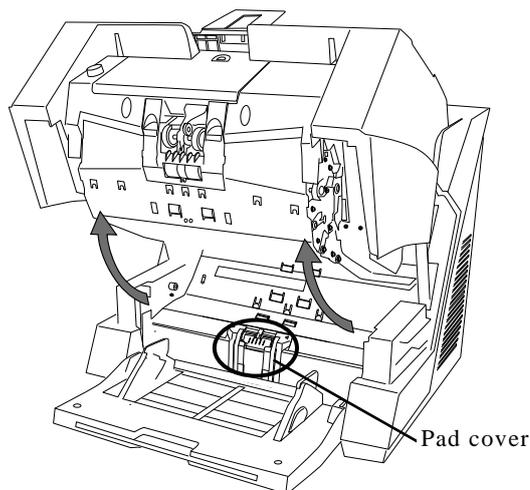


7. Close the ADF cover.
Refer to Section 3.1.3.
8. Reset the Separator roller counter.
Refer to Section 3.3.2 or 7.1.6.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	74/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

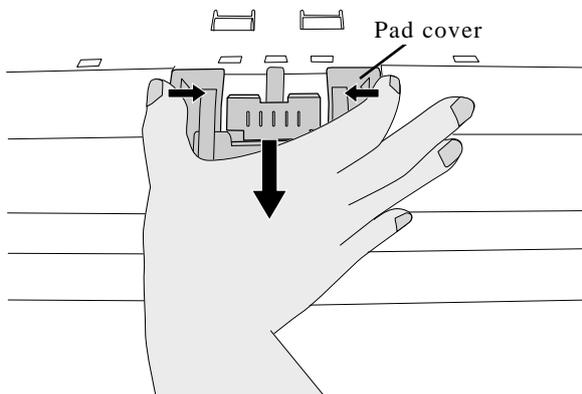
3.3.6 Replacing the Brake Roller

1. Move the Hopper down to the “low” position if it is set in an upper level.
2. Open the ADF cover.
Refer to Section 3.1.3.



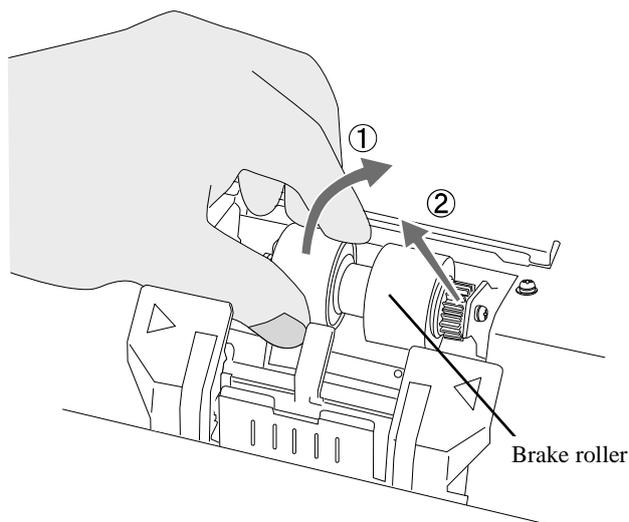
3. Open the Pad cover on the lower transport path.

05 Hold the Pad cover between the thumb and index fingers, and then pull it down towards you, bending it lightly in the arrow direction.



4. Remove the Brake roller.

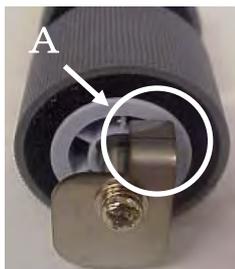
05 Lift up the left part of the Roller, and pull out the right shaft from the hole.



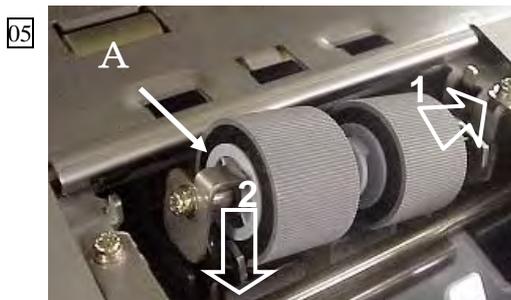
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 75/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

5. Install a new Brake roller.

05 Install a Brake Roller as shown below so that the right side (circled part A) comes up.



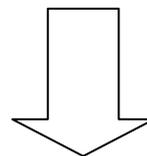
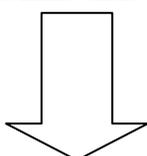
Insert the right shaft into the hole, and then attach the left end.



05

Note: If the Brake Roller is installed wrongly, an error will occur at the time of scanning, and the Operator Panel indicates “U8”.

If the error is indicated with “U8”, check whether the Brake Roller is installed correctly.



6. Close the Pad cover.

7. Close the ADF cover.

Refer to Section 3.1.3.

8. Reset the Brake roller counter.

Refer to Section 3.3.2 or 7.1.6.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	76/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

3.4 Scanner Settings

3.4.1 Software Operation Panel

The Software Operation Panel provides the functions to Users or Administrators that are provided by the Scanner Operator Panel on previous models.

The Software Operation Panel is installed together with the scanner driver (TWAIN/ISIS) from the CD-ROM.

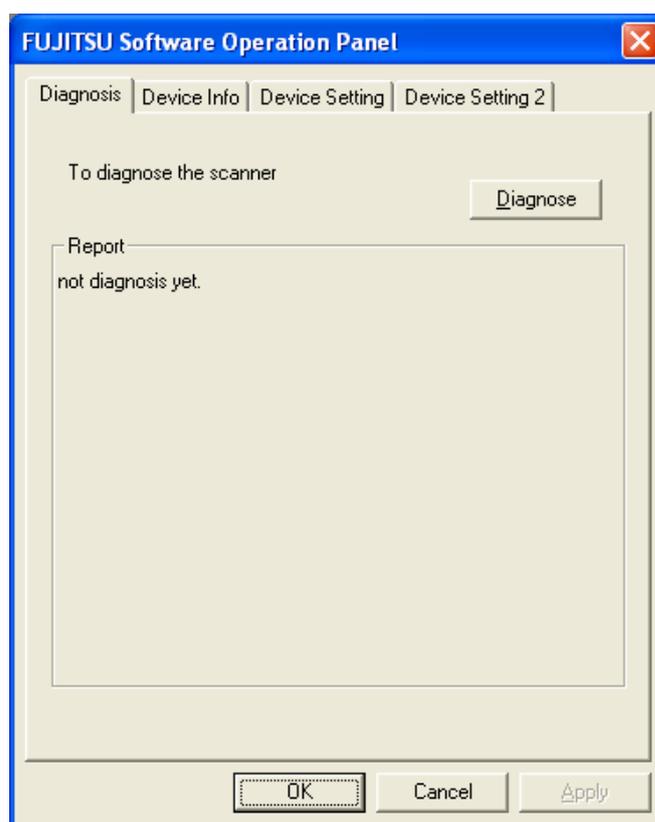
3.4.2 Opening the Software Operation Panel

(1) Starting up via Scanner

1. Confirm that the scanner is connected correctly to the PC, then power on the scanner.
2. Press the **Function** button on the Operator Pane until "C" is displayed on the Function Number Display.
NOTE: When pressing the **Function** button, the Function Number Display will change in the following way: [1] → [2] → ... → [9] → [C].
3. Press the **Send To** button, the "FUJITSU Software Operation Panel" window is displayed on the PC display.

(2) Starting up via PC

1. Confirm that the scanner is connected correctly to the PC, then power on the scanner.
2. From the [Start] menu, select [All Programs] - [Scanner Utility for Microsoft Windows] - [Software Operation Panel].
The "FUJITSU Software Operation Panel" window is displayed on the PC screen.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	
							CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	77/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

3.4.3 Settings

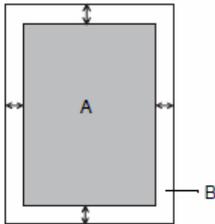
The following settings can be configured using the Software Operation Panel.

[Device setting]

No	Item	Explanation	Selectable parameter	Default
1	Page counter (Consumables /Periodical replacement parts counter)	For evaluating the consumable replacement cycle. Use this function to reset the counters after replacing consumables. Refer to Section 3.4	Total Page Count, Brake roller, Pick roller, Separator Roller, Pad, Remaining ink (Post), Remaining ink (Pre), Feed roller (*1)	-
2	Power saving	Select the inactivity time before entering the Power saving mode.	Setting range: 15 to 55 minutes (set in steps of 5 min.)	15 min.
3	Offset setting	Set the horizontal and vertical offset for scanning. (This setting adjusts image position. Offset value in Section 7.1.4 is not affected.)	Left right: setting range -2 to 3mm (set in 0.5mm steps) Up down: setting range -2 to 3mm (set in steps of 0.5mm)	Left right: 0mm Up down: 0mm
4	Vertical magnification Adjustment	Set the magnification of a scanned image. (This setting is for vertical image size adjustment. Magnification value in section 7.1.3 is not affected.)	Setting range -6.3% to 6.3% (set in 0.1% steps)	0%

*1: This counter is displayed when the RUBBER-ROLLER-K (Section 3.5) has been installed.

[Device Setting 2]

No	Item	Explanation	Selectable parameter	Default
1	Multifeed	Selects and enables the method for the Multifeed detection. (Checking overlapping, document length and checking document length and overlapping)	None/Check overlapping (Ultra sonic) /Check length/ Check overlapping and length. Length (detected as the difference of length): 10, 15 or 20mm is selectable.	Check Overlapping
2	Multifeed detection when scanning in manual feeding mode	Multifeed can be detected by this setting, even if the manual feeding is set.	Disable/Follow driver settings	Disable
3	Page edge filler (ADF)	Fill from the edge of the page with white.	Top/ Right /Left: 0-15mm Bottom: -7 to 7mm (set in 1mm steps)  (A: Generated image, B: Filled area)	Top/ Right/ Left/ Bottom: 0mm
4	Dropout color	Use this function to drop out a color in Grayscale or Binary mode.	Red/Green/Blue/ None	Green
5	Pre-pick	Picks next sheet of paper as previous page is scanned. If not enabled next page is not picked until scanning is complete.	Yes/No	Yes
6	Page Edge Filler Automatic paper size detection)	Fill the edges of the scanned image in white by the width specified. It is performed in auto-size detection	Top/Bottom/Right/Left: 0 ~ 7.5mm(set in 0.5mm steps)	Top/Bottom/ Right/Left 0mm

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 78/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

[Device Setting 2] (cont'd)

No	Item	Explanation	Selectable parameter	Default
7	Document Check area specification for Multifeed Detection	<ul style="list-style-type: none"> - Selected area: Mark if you want to enable all the area specified here. - Enable/Disable: This specifies whether to detect multifeed for left/center/right respectively. - Start point: Specify the length (mm) from the leading edge of the document. - End point: Specify the length (mm) from the leading edge of the document. 	Enable/disable all of this setting Enable/Disable each Ultrasonic sensor Start point from 0 to 510 mm, with 2 mm increment End point from 0 to 510 mm, with 2 mm increment	Disable Disable 0mm 0mm
8	Intelligent Multifeed Function	If photograph or something is pasted on the document and its size and/or position are the same, you can easily let the scanner memorize its size and/or position in order not to detect multifeed. To use this function, you need to specify [Check overlapping] at [Multifeed detection] in advance.	Manual mode Auto mode 1 Auto mode 2	Manual mode
9	Number of paper feeding retries	This is specified to decrease picking retry times for earlier jam detection.	Retry times from 1 to 12	12 times
10	Retain current paper thickness	The Paper thickness setting on the Operator panel can be memorized after turning off the power.	Remember/Do not remember	Do not remember
11	Cleaning cycle	The cleaning cycle of the scanner is specified by this setting. When Page counter (Consumable counter) exceeds the value specified here, the background color of the counter becomes yellow, and the message to ask user to clean the scanner may appear.	1,000 to 255,000 sheets, with 1000 sheets increment Show cleaning instructions: Yes/No	10,000 sheets No
12	Useful life counter	When the Page counter (Consumable counter) in Section 3.3 exceeds the value specified here, the background color of the counter becomes yellow.	For each consumable 10,000 to 2,550,000 with 10,000 increment	600,000 sheets
13	Set the interval for feeding sheets	Scanned image may be chipped at the bottom area, if the document is fed with large skew at paper size detection scanning. This trouble can be avoided by setting the document clearance (interval) wider.	4 steps from Standard to Wide	Standard
14	Thin Paper Mode	Switch to the thin paper prior timing. When this is enabled, the feeding speed will slow down slightly.	Disable Thin paper mode Super-thin paper mode	Disable
15	Soft pick setting	When a number of sheets are picked at a time and multi-feed is detected frequently, this setting may be effective.	Enable/Disable	Disable
16	Paper jam detection	Set the jam detection level for paper separator unit.	Normal/ Sensitivity-Low	Normal
17	AutoCrop Boundary	Specify the boundary at the auto size detection.	Round Up/ Round Down	Round Down
18	SCSI Bus Width	Set the SCSI Bus width.	16bit(Wide), 8bit	16bit
19	Auto-color Detection	Adjust slice value for Auto-color detection.	Slice: 0~255	5
20	Alarm Setting	Selects if the Alarm is displayed when a temporary error occurs.	Alarm at error/ No alarm at error	No alarm at error

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	79/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.					T.Anzai		

[Device Setting 2] (cont'd)

No	Item	Explanation	Selectable parameter	Default
21	Jam detection outside of scannable area when transporting paper	Set whether the scanner judges as paper jam or not when the paper is skewed and transported the path where the scanned image quality is not quarantined.	On, Off	Off
22	Imprinter selection	Select an imprinter when it is not selected from the driver.	Normal (Obey Host specification)/ Forcibly select Pre-imprinter/ Forcibly select Post-Imprinter.	Normal
23	Timeout for Manual feeding	Set the waiting time for timeout in Manual feeding mode. In Manual feeding mode, the scanner does detect paper empty if not paper is placed on Hopper. Once a sheet of paper is placed on to the Hopper, scanning begins after the Pick Start Time selection. If no paper is set on the Hopper after waiting for certain time period (Timeout at Manual feeding mode), a Hopper empty error is issued.	Select from the list from 5 seconds to 1999 seconds 5s, 10s, 20s, 30s, 40s, 50s ... 1200s, 1500s, 1800s, 1999seconds	10seconds
24	Scan Setting for Document with Tab	When the document has tab on the trailing edge, you can scan the document with the tab image remained by specifying "Document with tab" at scanning with automatic paper size detection. However the scanning speed may be slow.	Document with tab Document without tab	Document without tab

07

3.5 Periodical Replacement Parts

The periodical replacement parts and their applicable conditions are shown in the table below. Once the RUBBER-ROLLER-K is installed, the feed roller shall be replaced with FEED-ROLLER-K.

Condition to install the kit			Applicable Feed roller (kit)	Part number	Qty/ Scanner	Refer to
Condition 1. Scanner part number	Condition 2. Serial no.	Condition 3. If RUBBER-ROLLER-K has installed,				
PA03450-B001	-- (No need to check)	-- (No need to check)	No periodical replacement part available	---	---	---
PA03450-B015	#710000 or earlier	Yes	FEED-ROLLER-K (*2)	PA03450-D975	1	6.27
		No	RUBBER-ROLLER-K (*1)	PA03540-K973	1	6.28
Other than PA03450-B001/ PA03450-B015	#710001 or later	-- (No need to check)	FEED-ROLLER-K (*2)	PA03450-D975	1	6.27
		Yes	RUBBER-ROLLER-K (*1)	PA03540-K973	1	6.28
	#010000 or earlier	No	FEED-ROLLER-K (*2)	PA03450-D975	1	6.27
	#010001 or later	-- (No need to check)	FEED-ROLLER-K (*2)	PA03450-D975	1	6.27
		Yes	RUBBER-ROLLER-K (*1)	PA03540-K973	1	6.28

*1: Parts for Feed Rollers and Pinch rollers 1 to 9 (18 pc./set), replacement cycle of FEED ROLLERS approx. 3,000,000 sheets.

*2: Parts for Feed Rollers 1 to 9 (9 pc./set), replacement cycle approx. 3,000,000 sheets. If the following message appears after the rollers have been cleaned, those parts must be replaced.

Clean the Feed and Pinch rollers. For information on how to clean the rollers, refer to the Operator's Guide of the scanner. If the error message keeps appearing, please contact the dealer where you purchased the scanner or an authorized FUJITSU scanner service provider.

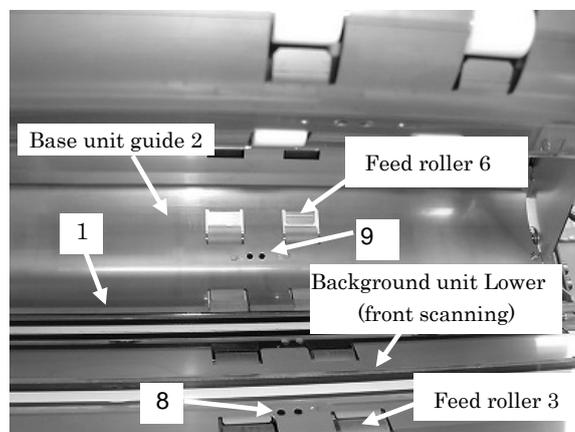
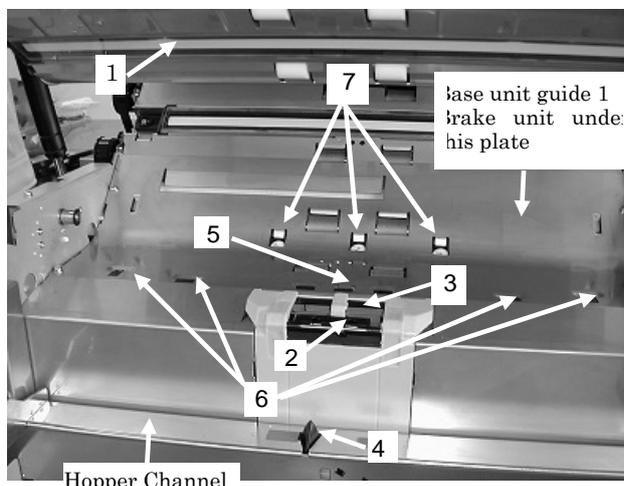
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 80/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 4 Scanner Operation Description

4.1 ADF Unit

(1) Names and Functions

Base unit

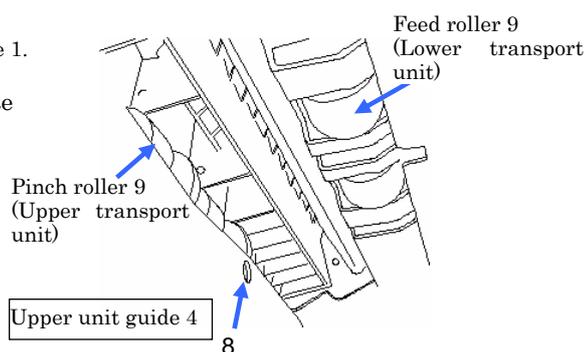
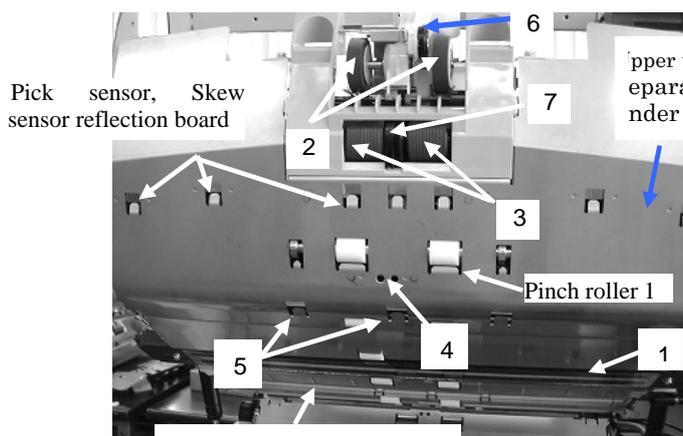


No	Name	Installed position	Maintenance part	Function
1	Lamp, Glass	Lamp unit	Lamp, Glass Section 6.15.8	Illuminates the area where the CCD unit (backside) scans documents.
2	Pad	Pad cover	Consumable Section 3.3.3	Prevents documents on the Hopper from being multi-fed.
3	Brake roller	Brake unit	Consumable Section 3.3.6	Prevents documents on the Hopper from being multi-fed.
4	Hopper Empty Sensor HPEMP_SE	Back of the Hopper Channel	Sensor Section 6.18.3	Detects if any documents loaded on the Hopper.
5	Pick Sensor PICK_SE	Sensor PCA on the Brake unit	Sensor PCA Section 6.15.4	Confirms that the document has been fed from the Separator roller into the scanner.
6	Skew Sensor SKEW_R1~R3_SE SKEW_L1~L3_SE	Sensor PCA on the Brake unit	Sensor PCA Section 6.15.4	Detects if the documents are skewed when fed.
7	Ultrasonic Sensor	Brake unit	US Sensor Section 6.17.1	Measures sound waves transmitted through the documents and detects multifeeds.
8	Read Top Sensor RED_TP_SE	Background unit Lower	Sensor SF3 Section 6.19.2	Checks the start timing of document scan.
9	Reject Sensor REJ_SE	Base unit guide 2	Sensor SF3 Section 6.19.3	Detects if the document reached this position.
10	Brake Encoder	Brake unit	Encoder PCA 1 Section 6.15.5	Detects the Brake roller rotation.

Note: Feed rollers are installed 1 to 9 stating from the front of the Base unit.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 81/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	81/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

Upper unit

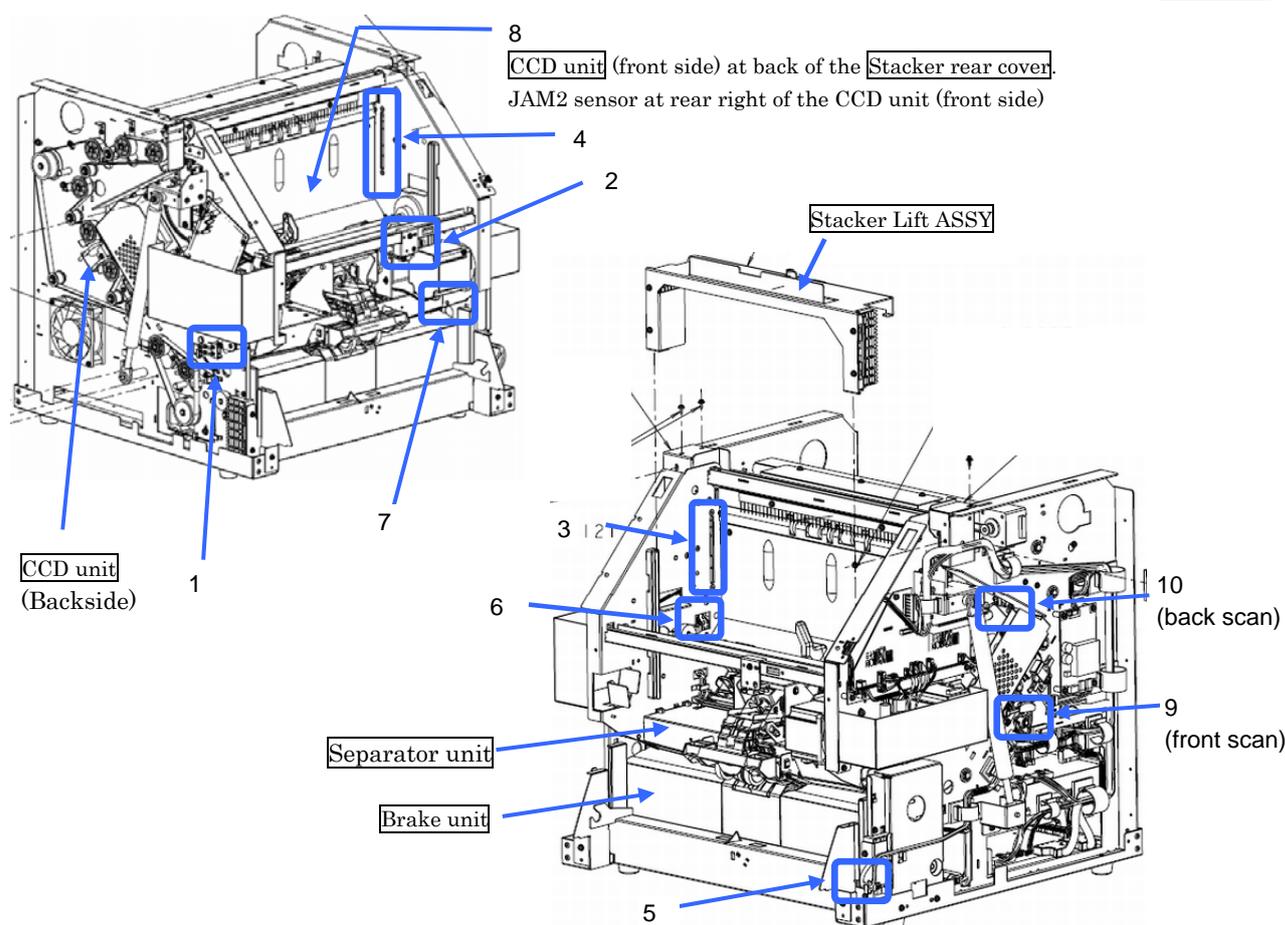


Background unit Upper (back scanning)

No	Name	Installed position	Maintenance part	Function
1	Lamp, Glass	Lamp unit	Lamp, Glass Section 6.16.13	Illuminates the area where the CCD unit (front side) scans documents.
2	Pick roller	Separator unit	Consumable Section 3.3.4	Feeds the paper from the Hopper into the scanner.
3	Separator roller	Separator unit	Consumable Section 3.3.4	Separates the sheets to be fed one by one and transports them to the transport roller in combination with the Brake roller.
4	Imprinter Top Sensor IMP_TP_SE	Upper unit guide 1 (Roller 1)	Sensor SF3 Section 6.19.1	Checks the start timing of imprinting by the Pre-Imprinter.
5	Ultrasonic Sensor	Separator unit	US Sensor Section 6.17.2	Measures sound waves transmitted through the documents and detects multifeeds.
6	Pick Encoder	Pick Encoder ASSY on the Separator unit	Encoder PCA 2 Section 6.16.9	Detects paper jam between the Pick roller and the Separator roller.
7	Separator Encoder	Encoder ASSY between the Separator rollers	Encoder PCA 1 Section 6.16.8	Detects paper jam between the Separator roller and the Pick sensor.
8	Exit Sensor EXT_SE	Upper unit guide 4	Sensor JAM Section 6.20.1	Detects if the documents were ejected from the Stacker.
9	Manual Feed Sensor	Back side when looking from the front of the Separator unit	Sensor Section 6.18.6	Detects manual feed mode.
10	Pick Position Sensor	Front side when looking from the front of the Separator unit	Sensor Section 6.18.6	Controls the Hopper table position.

Note: 9 Pinch rollers are installed 1 to 9 stating from the front of the Upper unit (ADF Cover).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	82/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			



No	Name	Installed position	Maintenance part	Function
1	ADF Cover Open Sensor	Left of the Base unit Left of the Base unit guide 1	Microswitch Section 6.21.1	Detects if the ADF Cover is open.
2	Imprinter Cover Open Sensor	Front of the Upper unit Under the Stacker	Microswitch Section 6.21.1	Detects if the Imprinter Cover is open.
3	Stacker Position Sensor	Left of the Upper unit Left of the Stacker	Sensor LED Section 6.16.16	Detects if any documents remain on the Stacker.
4		Right of the Upper unit Right of the Stacker	Sensor PTR Section 6.16.17	
5	Hopper Bottom Sensor HPBTM_SE	Right of the Hopper Channel	Sensor Section 6.18.2	Detects the bottom position of the Hopper table.
6	Stacker Bottom Sensor STKBTM_SE	Left of the Stacker lift ASSY	Sensor Section 6.18.1	Detects the bottom position of the Stacker.
7	JAM1 Sensor	Lower of the Upper unit Right of the Pinch roller 2	Sensor JAM Section 6.20.2	Detects the driven roller (Pinch roller 2) rotation of the Feed roller 1.
8	JAM2 Sensor	Back of the Upper unit Right of the CCD unit (front side)	Sensor JAM Section 6.20.3	Detects the driven roller (Pinch roller 6) rotation of the Feed roller 7.
9	Background Position Detection Sensor	Right of the Background unit, Lower	Sensor Section 6.18.4	Detects the background position of the document front side.
10		Right of the Background unit, Upper	Sensor Section 6.18.5	Detects the background position of the document backside.
11	Lamp temperature detection thermistor	Right of Lamp unit lower Left of Lamp unit upper	Not a maintenance part	Detects lamp unit temperature.

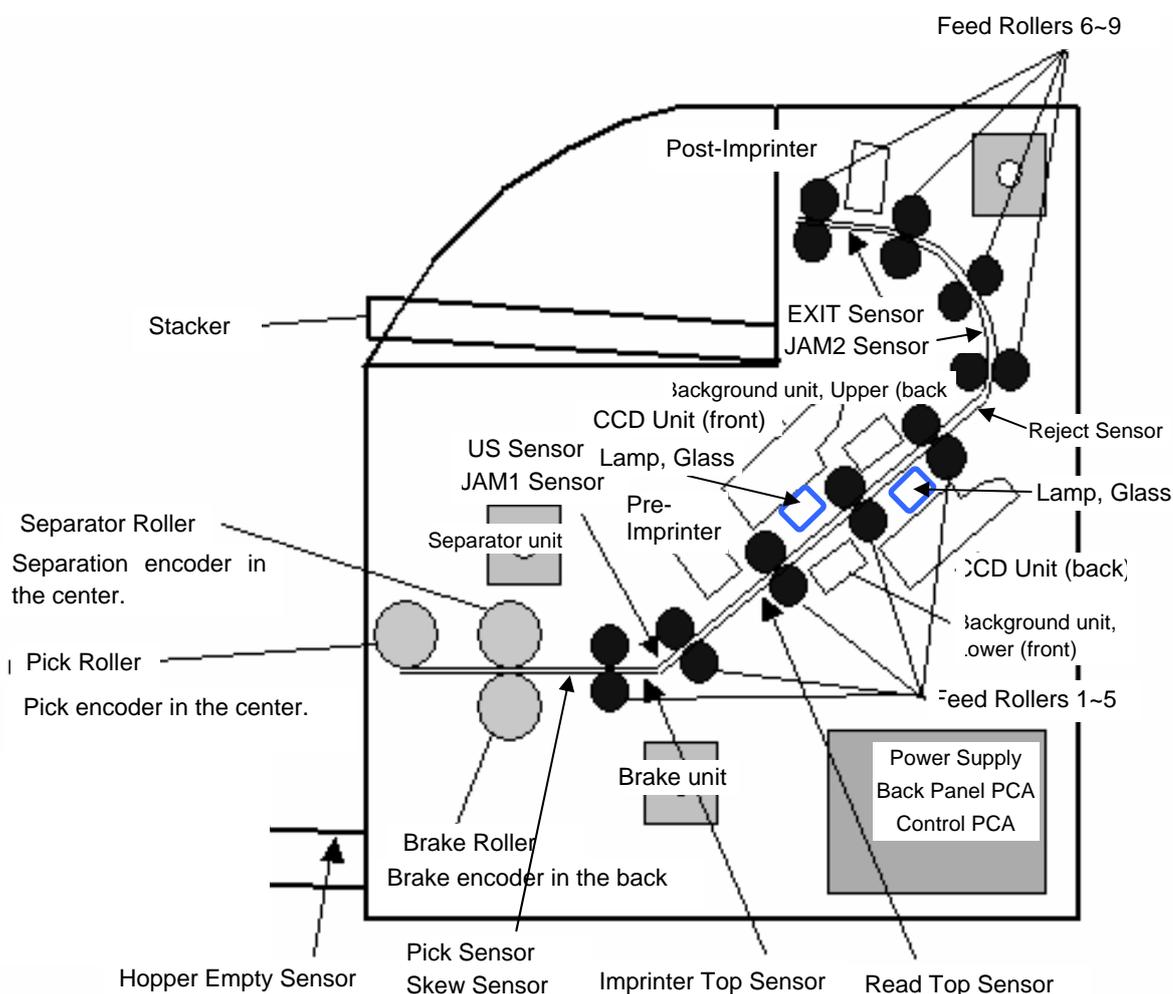
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	83/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(2) Paper feed and separation

When paper is loaded on the Hopper, the Hopper Empty Sensor detects documents. The PC starts scanning and the Hopper is elevated. When the Hopper is elevated to the picking position, the scanner starts the picking operation and feeds the documents on the Hopper into the scanner.

During the picking operation, the papers are fed into the scanner from the Hopper, separated one by one and transported further into the inner unit. During the picking operation, the Pick Sensor / Skew Sensor detect whether there is notch on the leading edge of paper (which detect Job separation sheet) and/or the paper is skewed. The Pick Encoder and Separator Encoder monitor the number of the transported papers and, when a paper jam occurred, stop the rotation of the Pick roller/ Separator roller to minimize the damage of the papers.

After the paper reaches the Feed rollers, the US (ultra sonic) Sensor monitors for multifeeds. At the Feed roller position, just before the scanning unit, there is a READ Top Sensor that determines the start of scanning. The front side of the paper is scanned by the CCD Unit located in the upper transport path and the backside is scanned by the CCD Unit located in the lower transport path. The scanned documents are transported and ejected on to the Stacker. When the Pick sensor detects the trailing edge of a document, the next document is picked.



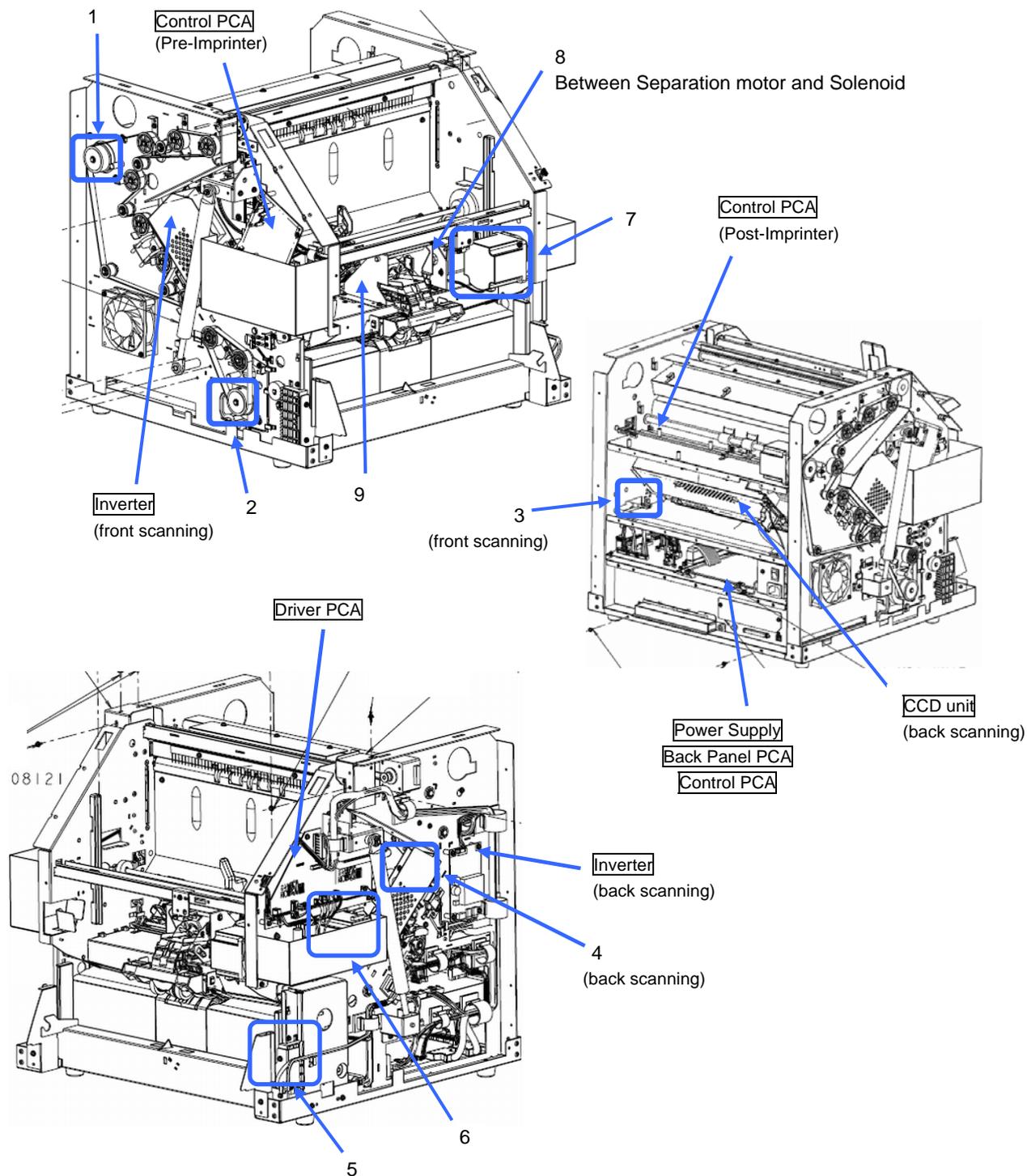
(3) Consumables

The Pick rollers, Separator rollers, Brake roller, and Pad are consumables, which are user replaceable (for the details, refer to Section 3.3). There are consumable counters that indicate the number of sheets scanned since each consumable was replaced. Users can check the counters through the “Software Operation Panel” or by using the scanner built-in Maintenance mode. Every time consumables are replaced, the counters should be reset. (Refer to Sections 3.3.2, 3.4 or 7.1.6 for the details.)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 84/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(4) Motor drive system, PCAs (boards)

The pick rollers are turned by the Pick motor and the Separator rollers by the Separation motor. The Brake roller is loaded rotation by electromagnetic brake. The Pick roller is driven up and down by a Solenoid. The Feed rollers are turned by two Feed motors. The Hopper and the Stacker are driven up and down by respective Table Motor, the backgrounds for the front side and the backside are driven by respective BW Motors. The drive circuits of the motors are located on the Control PCA (printed circuit board assembly) and the Driver PCA. If abnormal electric current runs through the motor drive circuit, the current is cut off by the motor fuses located on the Control PCA or the Driver PCA.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	85/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

No	Name	Installed position	Replacement part	Function
1	Feed motor	Lower left of the Base unit	Feed motor 2 Section 6.15.10	Drives the Feed rollers 1~2.
2		Upper left of the Base unit	Feed motor 1 Section 6.15.11	Drives the Feed rollers 3~9.
3	Background motor	Right side of the Base unit	BW motor Section 6.15.7	Drives background on the front of the document.
4		Right side of the Upper unit	BW motor Section 6.16.12	Drives background on the backside of the document.
5	Hopper motor	Lower right of the Base unit	Table motor Section 6.15.12	Drives the Hopper table.
6	Stacker motor	Right side of the Upper unit	Table motor Section 6.16.2	Drives the Stacker.
7	Separation motor	Right side of the Upper unit	Separation motor Section 6.16.4	Drives the Separator motor.
8	Pick motor	Separator unit	LF motor Section 6.16.10	Drives the Pick roller.
9	Solenoid	Separator unit	Pick Solenoid Section 6.16.6	Drives the Pick roller up and down.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	86/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

4.2 Reading Station

(1) Optical system

Documents shall be placed in the Hopper, front side face up (Refer to Section 3.1.2). The front side of the document is scanned by CCD Unit in the Upper Transport, and the backside of the document is scanned by the CCD Unit in the Lower Transport. The two CCD Units are identical and are interchangeable if necessary.

The image on the document is projected to a color CCD through a lens and mirror system and converted to image signals that are 10 bit per pixel at 600 dpi resolution.

(2) Light source and heater

The scanner uses two lamps (White cold cathode discharge lamp) each for ADF front / ADF back respectively which lights the scanning area of the front and back side in order to get sufficient CCD output. The lamp is turned ON or OFF by an inverter that is controlled by the Control PCA.

The life of the lamps is approximately 5,000 hours, which means the lamps have a lifespan of up to 10 million documents.

The lamps have heaters and thermistors attached, which are controlled to stabilize the lamp temperatures while the power is supplied. The power of the lamps and heaters are turned OFF during sleep mode.

The CCD Units have two lamps with heaters respectively. At replacement, two lamps are replaced as a unit "LAMP ASSY".

(3) Scan controller

Before scanning a document, the scanner reads the white background of the scanning position and adjusts the gain of the CCD amplifier. If the CCD output does not reach a reference level after the gain adjustment, an Optical alarm is issued.

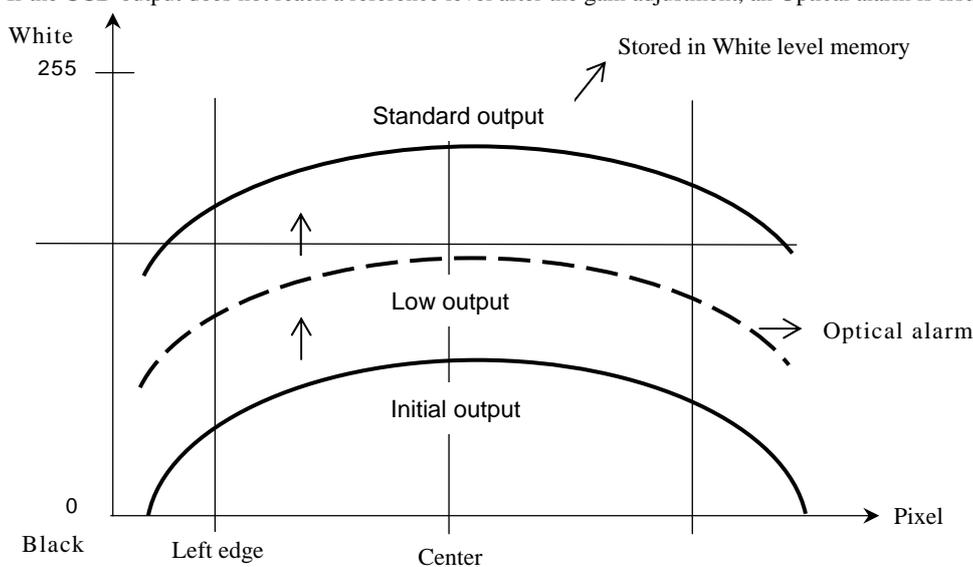


Figure 4.2 AGC (Automatic Gain Control)

When the gain adjustment is completed successfully, the scanner feeds the document to the reading position at the speed that corresponds to the specified reading resolution. The leading edge of the document is detected by the READ Top sensor in immediately before the reading position. The document is fed from the READ Top sensor by some defined length for front and back side scanning (the length which determines sub-scanning offset), the scanner begins reading the image. The scanner terminates the scan operation when the length specified from the host is scanned (Fixed size scanning) or when the READ Top sensor detects the trailing edge of the document (Page end detection scanning).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 87/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

4.3 Controller

(1) Control PCA

The Control PCA controls the units in the block diagram below with 3 types of software, one for interface control (SDC) and another for two mechanical control (MDC, PUC). The firmware can be updated through the SCSI/USB interface using the firmware update tool. Firmware version number can be confirmed in the procedure described in Section 7.1.7.

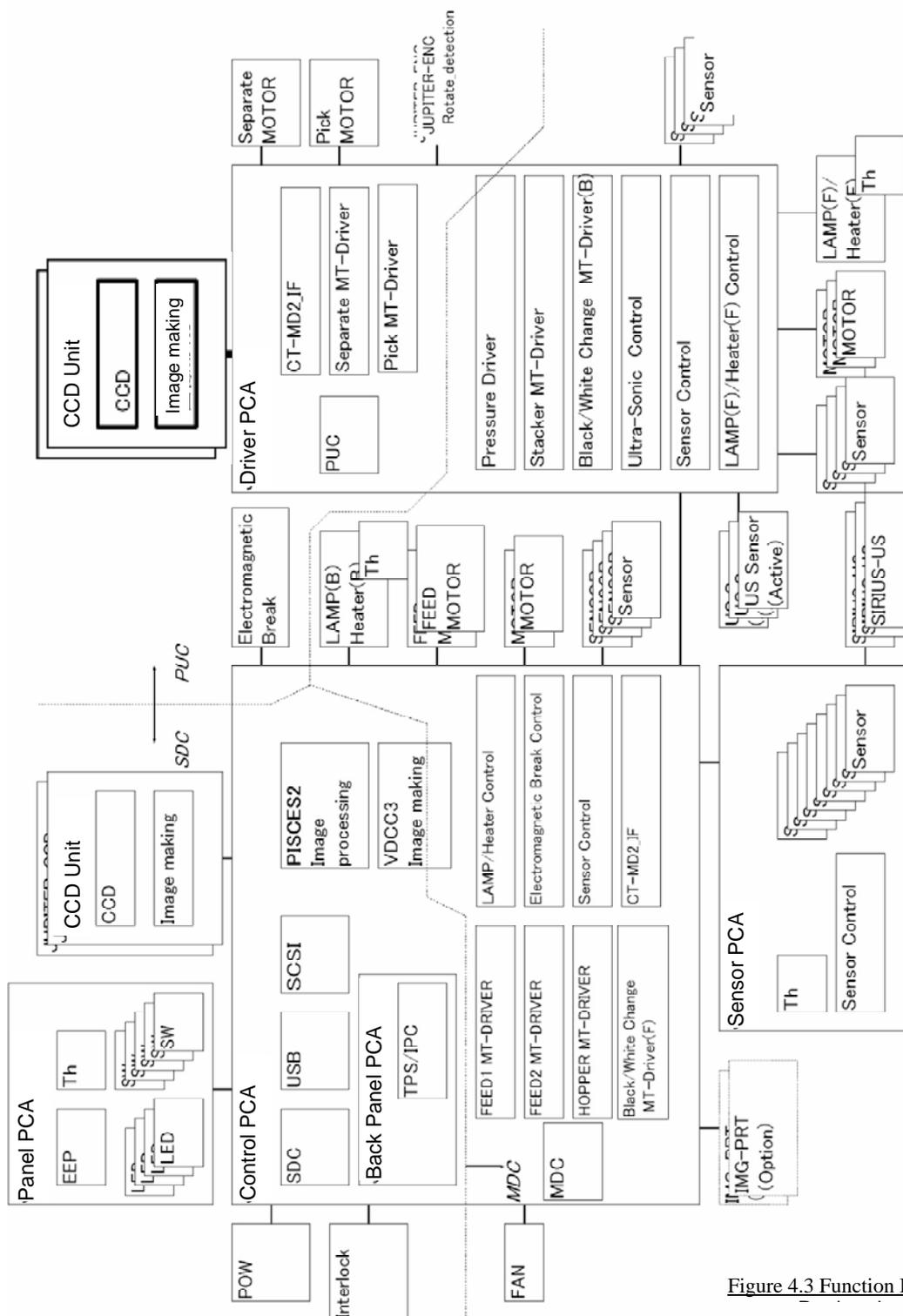


Figure 4.3 Function Block Diagram

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	88/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

The Control PCA includes the following exterior connectors and a switch (Refer to Section 1.1.5 (2)).

- WIDE SCSI connector (1)
- USB connector (1)
- SCSI ID setting rotary switch
- Connector for third party slot
- Connector for CGA board
- Connector for extended memories

If both the SCSI and USB cables are connected at the same time,

- SCSI is selected when selection phase is recognized first.
- USB is selected when H level VBUS signal is detected first.

(2) Panel PCA

This scanner has an Operator Panel including the Power button mounted at right side of the Upper unit. (Refer to Section 1.1.4 (3) for the button and lamp allocation.) The Panel PCA has the EEPROM that records the information below. When replacing the Panel PCA, the data stored in the EEPROM must be copied to the Control PCA temporarily (Refer to Section 7.2). Once the new Panel PCA is installed, the data that is temporarily stored on the Control PCA must be restored to the new Panel PCA (refer to Section 7.1.8).

- Magnification correction value for sub-scanning direction / Offset correction value for main/sub-scanning direction
- White level correction value
- Values of all the consumable counters
- Firmware version number, First date of the scanner operation, the number of documents scanned by the scanner
- Remaining ink, Print cartridge counter (only when the Imprinter is installed)

(3) Sleep mode

If a scan operation is not performed for over the specified period, the scanner automatically goes into the Sleep mode. This specified period is set to 15 minutes at the factory. However, this period can be changed using the Software Operation Panel in Section 3.4. During Sleep mode, the lamp heaters turn off and the Function No. display is turned OFF. Only the power LED remains ON.

Perform one of the operations below to return from the Sleep mode.

- Set documents on the Hopper.
- Press any button on the Operator Panel.
- Execute a command from the scanner driver.

(4) Emulations

When the user replaces the following scanners with fi-5900C, the communication can fail because of driver incompatibly.

If the current driver for the scanners listed below must be used for any reason, Emulation mode must be used.

This mode is not open to user. This mode may not be used for maintenance. Refer to section 7.3 if required.

- fi-4990C
- M4099D
- fi-4860C

13

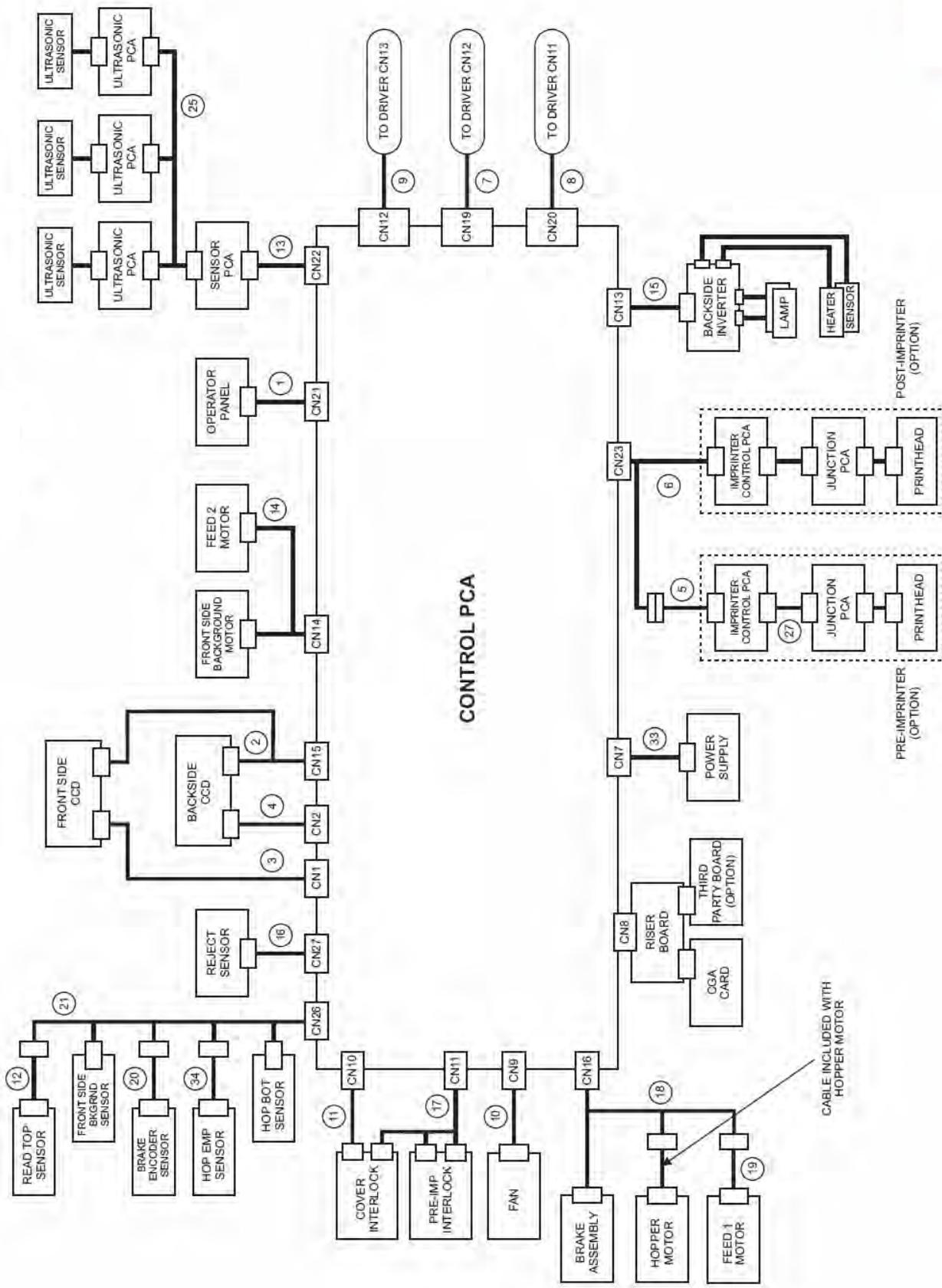
NOTICE

When the scanner operates as M4099D, binary scanning by the ISIS driver is not supported.

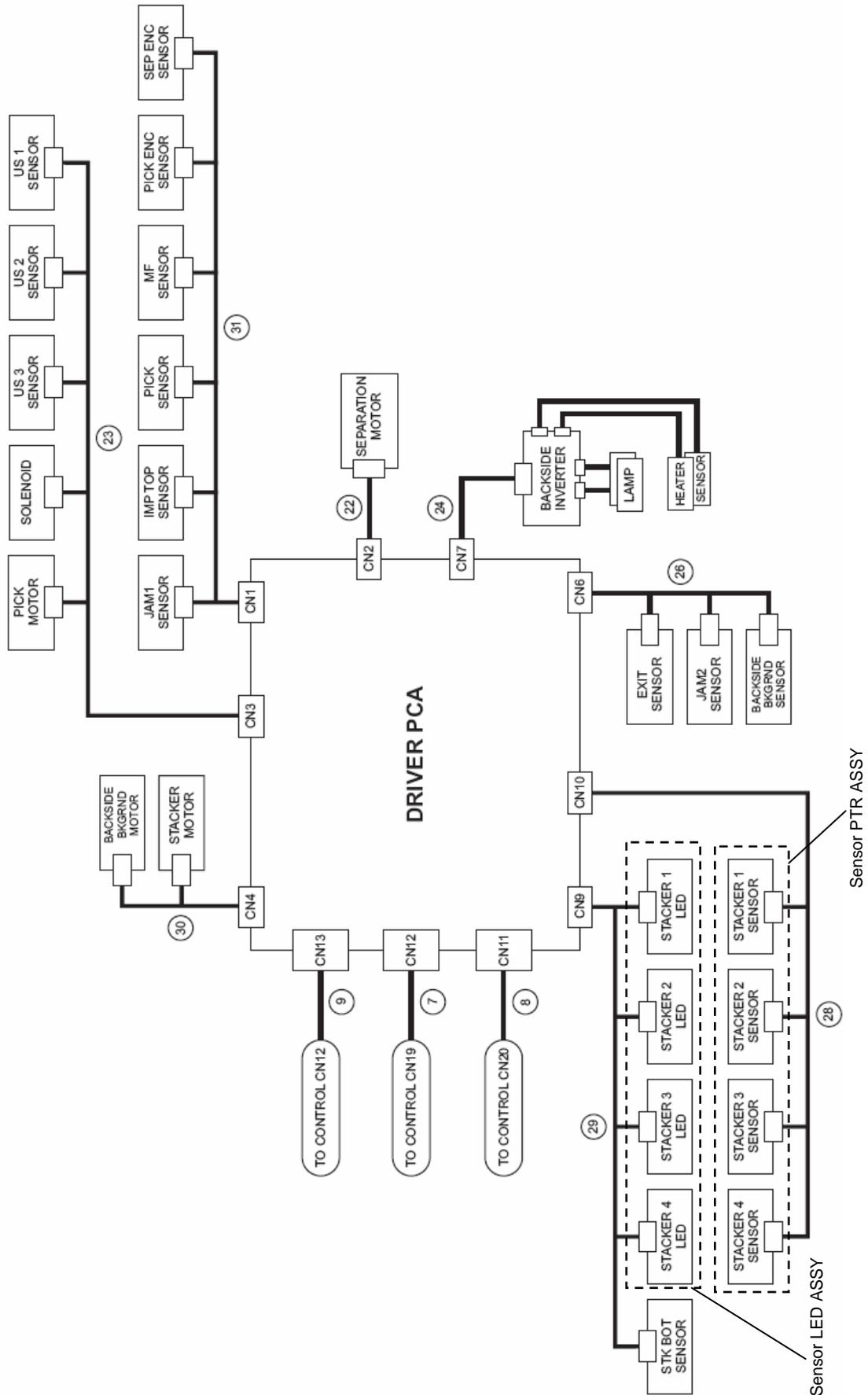
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			89/327

4.4 Cable Connection Diagram

05



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	90/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	91/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

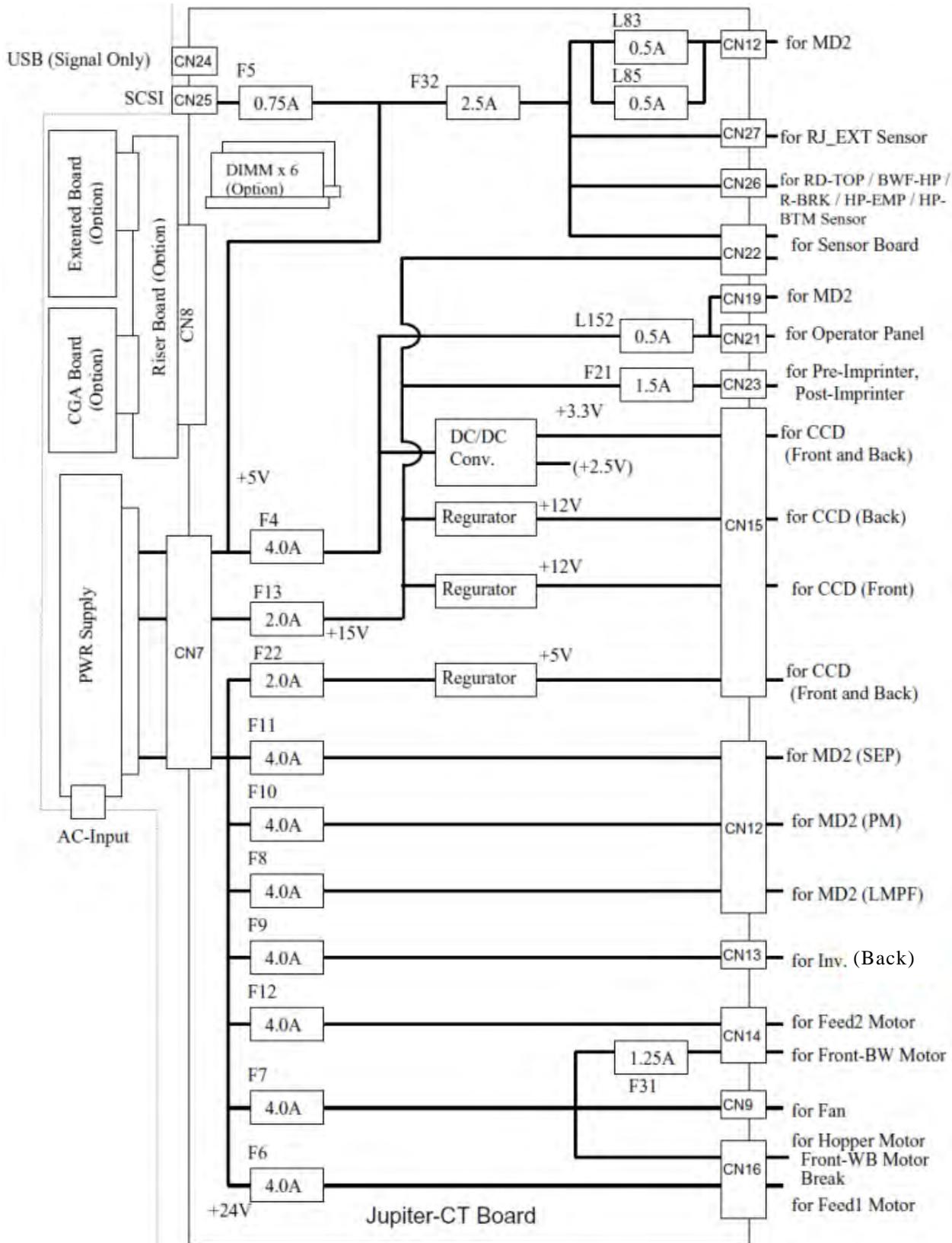
[Cable List]

NO.	PART NUMBER	CABLE DESCRIPTION
1	PA70002-3535	CONSOLE CABLE
2	PA70002-3536	CCD CABLE POWER
3	PA70002-3537	CCD CABLE F
4	PA70002-3538	CCD CABLE B
5	PA70002-2175	PRE-IMPRINTER CABLE
6	PA70002-3539	CT-IMPINTER CABLE
7	PA70002-3540	CT-MD2 CABLE S1
8	PA70002-3541	CT-MD2 CABLE S2
9	PA70002-3542	CT-MD2 CABLE POW
10	PA70002-3543	FAN CABLE
11	PA70002-3550	INTERLOCK CABLE 1
12	PA70002-3544	RED TP CABLE
13	PA70002-3545	CT-SENSOR CABLE
14	PA70002-2211	FEED MOTOR CABLE
15	PA70002-3546	CT-INVERTER CABLE
16	PA70002-3547	CT-REJECT CABLE
17	PA70002-3551	IL CABLE 2
18	PA70002-3548	HOPPER MOTOR CABLE
19	PA70002-2219	FEED MOTOR CABLE 2
20	PA70002-2221	BRAKE CABLE
21	PA70002-3549	CT-HPSE CABLE
22	PA70002-2243	SEPARATION MOTOR CABLE
23	PA70002-3552	MD2-DF CABLE
24	PA70002-2249	MD2-INVERTER CABLE
25	PA70002-2250	DF SENSOR CABLE
26	PA70002-2251	MD2-OUTSIDE CABLE
27	PA70002-2252	PR CABLE
28	PA70002-2253	STACKER SENSOR CABLE R
29	PA70002-2254	STACKER SENSOR CABLE L
30	PA70002-2255	MD2-OUTSIDE MOTOR CABLE
31	PA70002-2256	MD2-INSIDE CABLE
32 *	PA70002-2257	ENCODER FG CABLE
33	PA70002-2224	CT-POW CABLE
34	PA70002-2222	HP-EMP CABLE

* CABLE NOT INCLUDED IN THE WIRING DIAGRAMS

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	92/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

4.5 Diagram of Power Supply System



Control PCA

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	93/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

The Pin assignment of the connector between Power supply and Control PCA (CN7) is as follows.

Connector (CN7)	A1	+24V
	A2	GND
	A3	+15V
	A4	GND
	A5	+5V
	A6	GND
	A7	POWER_
	A8	GND
	B1	+24V
	B2	GND
	B3	OPEN
	B4	GND
	B5	+5V
	B6	GND
	B7	STNBY
	B8	+24V_OFF

+24V	(24V/A1,B1 \leftrightarrow GND/B2) 21.6V~26.4V is output. +24V_OFF signal and STNBY signal shall be "H".
+15V	(15V/A3 \leftrightarrow GND/B2) 14.25V~15.75V is output. STNBY signal shall be "H".
+5V	(5V/A5,B5, \leftrightarrow GND/A6) 4.75V~5.25V is output.
POWER_C	(POWER/A7 \leftrightarrow GND/A8) The signal to turn ON the power. At power-on, "L (0.8V or less)" is normal.
OPEN	This pin is not connected to anywhere. Do NOT touch it!
STNBY	(STNBY/B7 \leftrightarrow GND/A8) Power-saving ON-OFF signal. "L (0.8V or less)" at power-saving mode. "H (2.0V or more)" at normal status.
+24V_OFF	(+24V_OFF/B8 \leftrightarrow GND/A8) This signal turns to "L" and 24V power supply is turned off when the ADF cover is open or Pre-imprinter cover is open. "H (2.0V or more)" at normal status.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	94/327			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.					T.Anzai		

Chapter 5 Troubleshooting

5.1 Function Number Display Sequence at Power-on

The following display is shown during initial processing (self-diagnostics).

Function No. Display	Power LED	Description
	ON	Displays "8" without blinking. Immediately after power-on, the scanner turns all the segments ON.

When the initial processing begins, the following is displayed.

Function No. Display	Power LED	Description
	ON	Displays "P" without blinking. Indicates the scanner is currently in initial processing (self-diagnostics).

When the initial processing is completed successfully, the following is displayed.

Function No. Display	Power LED	Description
	ON	Displays default Function No. without blinking. Indicates the scanner is in ready state.

The Function No. is incremented by 1 every time the **Function** button is pressed. After Function No. 9 is displayed, the number changes to "C" and then returns to "0".

If any error is detected at initial processing (self-diagnosis), it is displayed on the Operator Panel (Function Number Display).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	95/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

5.2 Temporary Errors and Alarms

5.2.1 Temporary Errors

Temporary errors occur during scanning operation and can be remedied by the operator. They are displayed on the PC screen through the driver or on the operator panel (Function Number Display) of the scanner.

When a temporary error occurs, the scanner displays the followings:

Function No. Display	Power LED	Description (supplement)
	ON	Displays "U" and the error No. (0 to 9) alternately. Example) When error "U0" occurs, the scanner displays the following: "U" → "0"

When the **Scan** or **Send to** button is pressed while the alarm is displayed, the scanner returns to the "Ready" display on the Function number display.

5.2.2 Alarms

Alarms require maintenance by an authorized service person. They are displayed on the PC screen through the driver or on the operator panel (Function Number Display) of the scanner.

When an alarm occurs, the scanner displays the followings on the operator panel:

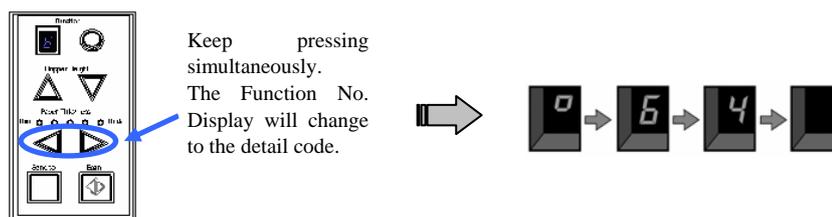
Function No. Display	Power LED	Description (supplement)
	ON	Displays "E" and one of the alarms (0 - 9, A, c, d, F) alternately. The example shown in the left column is the case of Alarm "E0". The display sequence is: "E" → "0" → The interval of the display change is approximately 1 second.

When the **Scan** or **Send to** button is pressed while the alarm is displayed, the scanner returns to the "Ready" display on Function number display.

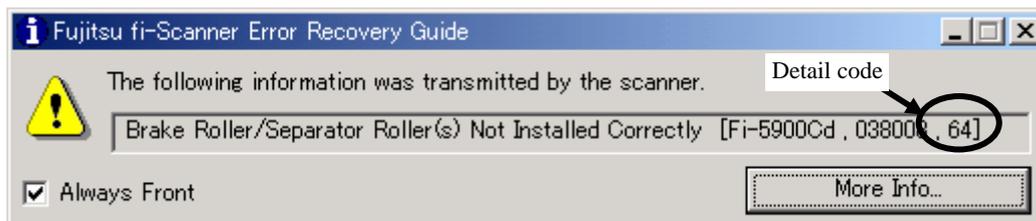
5.2.3 Detail Code

If you keep pressing the **Paper Thickness** buttons ◀ and ▶ simultaneously while a temporary error or scanner alarm is displayed, the corresponding error detail code appears on the Function Number Display. If you let go of your fingers, the error code appears on the Function Number Display again. Refer to the Appendix "Scanner Error List" for the detail code and its meaning.

- 07 Note: Close the ADF before the operation. If the ADF is left open, the detail code displays "40" (ADF open).
Example) Detail code is "64":



If the application "Error Recovery Guide" (step (6) of Section 2.2.2) is installed in the PC, the corresponding error name and detail code are displayed on the PC screen when any error or scanner alarm comes up.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	96/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5.3 Troubleshooting

When a temporary error or an alarm occurs, find the troubleshooting procedure from the list in this section and go to the related section for maintenance. Before starting the troubleshooting, get the following information from your customer to understand whether the error is scanner-related or system-related.

- Is the scanner operated correctly?
- Are the fault symptoms reproducible by some setting of the driver?
(Check if the target scanner causes the same error by connecting with other computer system.)

The following table lists the case of troubleshooting described later in this section.

Error category	Error description	Detail code	Related section
Device	Scanner does not turn ON. (No display on the operator panel)	-	5.3.1.1
	Power button on Operator panel does not function. Only the main power switch at rear of the scanner turns ON/OFF the scanner. 06	-	5.3.1.2
	Scanning does not start.		5.3.2
	Scanned image is distorted.	-	5.3.3
Image	Resolution or gradation on scanned image is unsatisfactory.	-	5.3.4
	Too much jitter on scanned image	-	5.3.5
	Scanned image is not aligned properly	-	5.3.6
	Magnification of scanned image is incorrect	-	5.3.7
	Vertical streaks appear in the scanned image	-	5.3.8
	When white level of scanned image is not proper	-	5.3.9
Temporary error	False "Hopper empty" error	-	5.3.10
	U1: Frequent document jam error	31, 34, 35, 3a, 3b, 3c, 3d, 3e 50, 51, 52, 53, 54, 5a, 5b, 5c	5.3.11
	U2: Frequent multi feed error	55, 56	5.3.12
	U4: False "ADF/Imprinter cover open" error	40, 4a 13	5.3.13
	U6: "No print cartridge"	b4, ba	5.3.14
	U8: "ADF setup error"	01, 02, 03, 04, 05, 06, 61, 64, 65	5.3.15
Alarm	E0: "Hopper Overrun or Stacker Overrun alarm"	c0, c1	5.3.16
	E2: "Optical alarm"	72, 74	5.3.17
	E3: "Optical alarm"	73, 75	
	E4: "Motor fuse blown"	80, 81, 82, 88, 89, 8a	5.3.18
	E5: "Lamp fuse blown"	84	5.3.19
	E6: "Operator panel alarm"	-	5.3.20
	E7: "EEPROM alarm"	d2	5.3.21
	E8: "SCSI fuse blown"	-	5.3.22
	E9: "Memory alarm"	e4	5.3.23
	EA: "Imprinter alarm"	b2, b3, b5, b6, b8, b9, bb, bc, be, bf	5.3.24
	Ec: "RAM alarm"	e5, e6	5.3.25
	Ed: "SPC alarm"	-	5.3.26
	EF: "Background switch alarm"	C2, c3	5.3.27
	E11: "Fan alarm"	ec	5.3.28
	E12: "Heater alarm"	92, 93	5.3.29
	E15: "Extended memory alarm"	ee	5.3.30
	E16: "Option board alarm"	ed	5.3.31
	E17: "Imprinter fuse blown"	b1	5.3.32
	E18: "Sensor alarm"	11, 12, 13, 14, 15, 17, 1b	5.3.33
	E19: "LSI alarm"	86, e9, ea	5.3.34
	E1A: "Internal scanner communication error"	f0, f1, f4, fa, fb, fc	5.3.35
	F: "Flash memory check sum alarm"	-	5.3.36
	Imprinter do not operate initially	-	5.3.37
	No imprinting / Imprinting distortion	-	5.3.38
	Imprinting form soiled	-	5.3.39
	"Imprinting area is out of paper"	-	5.3.40

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	97/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

How to Troubleshoot:

- ✧ The troubleshooting should be conducted from item number 1 to the last item number in each table. Continue the troubleshooting until the error is corrected.
- ✧ Obtain error information of the Error Recovery Guide (Step 6 in Section 2.2.2) from the user, then find the error location referring to the Appendix “Scanner Error List”.
- ✧ Refer to Section 4.1 “ADF unit” for the installation positions of the maintenance parts.

5.3.1.1 Scanner does not Turn ON (No display on the operator Panel)

Table 5.3.1.1

Item No.	Check items	How/where to check
1	Is the AC cable connected correctly? Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Connect the AC cable to a different wall outlet.	---
3	Replace the AC cable and see if the error is corrected.	---
4	Replace the Panel PCA and see if the error is corrected.	Refer to Section 6.7.
5	Replace the Power supply and see if the error is corrected.	Refer to Section 6.10.1.
6	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

06

5.3.1.2 Power button on Operator Panel does not Function. Only the Main Power Switch at Rear of the Scanner Turns ON/OFF the Scanner.

Table 5.3.1.2

Item No.	Check items	How/where to check
1	Check the SW3 (DIP switch) direction on the Control PCA.	Refer to Section 6.12.

5.3.2 Scanning Does not Start

Table 5.3.2

Item No.	Check items	How/where to check
1	Does the same symptom appear after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Check the items listed in the right column.	<ul style="list-style-type: none"> • Is the AC cable connected properly? • Is the interface cable (SCSI or USB) connected properly? • Is the SCSI ID correctly set? • Are there documents loaded on the Hopper? • Is the ADF cover completely closed? • If any temporary errors or alarms are indicated, follow the corresponding troubleshooting.
3	If the CGA board of the VRS image processing option is in use, check the items on the right.	<p>When both orange and green LED on the CGA board are flashing or lighting, the following statuses may be the cause.</p> <ul style="list-style-type: none"> • The CGA board is not inserted into the back panel properly. • The CGA board or the mounted DIMM may be abnormal. • The Back panel and the Control PCA are abnormal. <p>When orange LED on the CGA board is turned off and green LED is lighting, DIMM is not installed on the CGA board.</p> <p>Note: Even if the CGA board is abnormal, the Operator panel displays as usual (Turned on the scanner → 8 → P → 1).</p>

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	98/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.3 Scanned Image is Distorted

Due to the loose contact in connectors, broken wires in cables, or defective parts, scanned images may have regular or random patterns of distortion.

Table 5.3.3

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Is the interface cable (SCSI or USB) connected properly? If any temporary error or alarm is indicated, follow the corresponding troubleshooting.
2	Are the cables between the Control PCA and the CCD Unit damaged? Or are the connectors connected properly?	ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning (Base unit): Refer to Section 6.15.13.
3	Replace the CCD unit and see if the error is corrected.	ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning: (Base unit) Refer to Section 6.15.13.
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.4 Resolution or Gradation on Scanned Image is Unsatisfactory

Table 5.3.4

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Does the document satisfy the paper specifications described in the Section 1.2? Are the scan settings (resolution, density) correctly specified in the driver for the document being scanned? Is the interface cable (SCSI or USB) connected properly? If any temporary errors or alarms are indicated, follow the corresponding troubleshooting.
2	Clean the reading section (glass) and see if the error is corrected.	Refer to Section 3.2.
3	Clean the Feed rollers and Pinch rollers and see if the error is corrected.	Refer to Section 3.2.
4	Is the CCD Unit dirty? Are the cables damaged? Are the connectors for the CCD Unit, Lamps, or Background units connected properly?	Refer to Section 6.3.1 for the cleaning of CCD Unit. ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning (Base unit): Refer to Section 6.15.13.
5	Replace the CCD Unit and see if the error is corrected.	See Item 4.
6	Replace the Lamp and see if the error is corrected.	ADF front scanning (Upper unit): Refer to Section 6.16.13. ADF back scanning (Base unit): Refer to Section 6.15.8.
7	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	99/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.5 Too Much Jitter on Scanned Image

The following shows a sample of scanned image when “Jitter” occurs. This occurs when the Feed rollers do not transport the document smoothly.

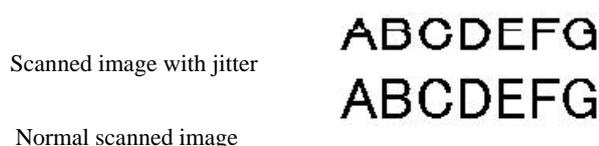


Table 5.3.5

Item No.	Check items	How/where to check
1	Does the document satisfy the paper specification?	Refer to Section 1.2 for the paper specification.
2	Clean the Feed rollers and the Pinch rollers and see if the error is corrected.	Refer to Section 3.2.
3	Replace the Pick roller set and the Brake roller and see if the error is corrected.	Check the consumable counter in the Software Operation Panel (Section 3.3.2) or in the built-in Maintenance mode #5 (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace the Pick roller or the Brake roller.
4	Are the cables between the Control PCA and the Feed motor damaged? Are the connectors connected properly?	Feed motor 2: Refer to Section 6.15.10. Feed motor 1: Refer to Section 6.15.11.
5	Is the CCD Unit installed correctly?	ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning (Base unit): Refer to Section 6.15.13.
6	Are the Belt Feed 1 and Belt Feed 2 installed correctly?	Belt Feed 2: Refer to Section 6.15.10. Belt Feed 1: Refer to Section 6.15.11.
7	Are the Belt Feed 1 and Belt Feed 2 damaged?	See Item 6.
8	Replace the Feed motor and see if the error is corrected.	See Item 4.
9	Replace the CCD Unit and see if the error is corrected.	See Item 5.

5.3.6 Scanned Image is Not Aligned Properly

Table 5.3.6

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Does the document satisfy the paper specifications described in section 1.2? Are the scan settings (document size, etc.) configured properly in the scanner driver?
2	Clean the Feed rollers and the Pinch rollers and see if the error is corrected.	Refer to Section 3.2.
3	Adjust the offset value in the Scanner Setting (Software Operation Panel).	Refer to Section 3.4.
4	Adjust the offset using the scanner Maintenance mode #3.	Refer to Section 7.1.4.
5	Is the CCD Unit installed correctly?	ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning (Base unit): Refer to Section 6.15.13.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	100/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

5.3.7 Magnification of Scanned Image is Incorrect when Scanning from the ADF

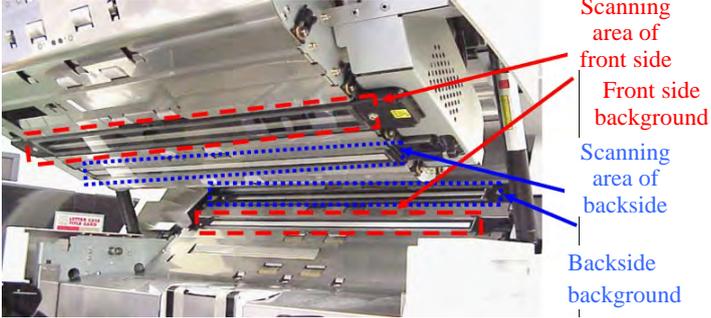
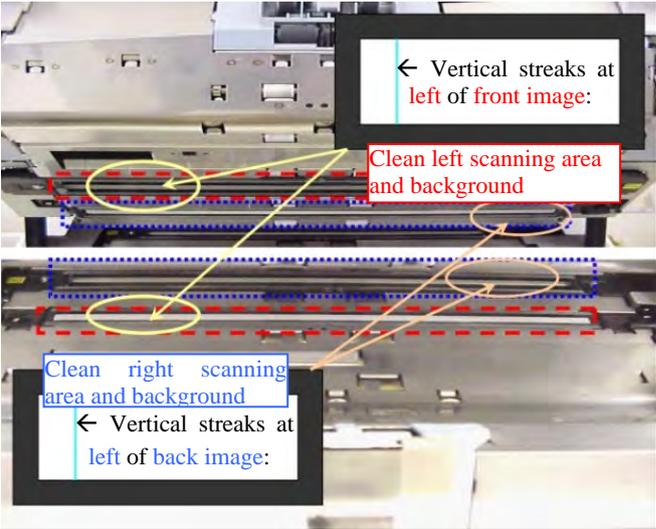
Table 5.3.7

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	Are the scan settings (resolution, etc.) configured properly in the scanner driver?
2	Does the abnormal magnification occur horizontally (main scanning direction) or vertically (sub-scanning direction)?	Sub-scanning direction: Go to item No.3 Main scanning direction Go to item No.8
3	Clean the Feed rollers and the Pinch rollers and see if the error is corrected.	Refer to Section 3.2.
4	Are there foreign objects in the transport path affecting the rotation of the Feed rollers?	Referring to Sections 6.15.10 and 6.15.11, check around the Belt Feed 1 and Belt Feed 2.
5	Adjust the vertical magnification in the Scanner Settings (Software Operation Panel).	Refer to Section 3.4.
6	Are the Belt Feed 1 and Belt Feed 2 loose?	Belt Feed 2: Refer to Section 6.15.10. Belt Feed 1: Refer to Section 6.15.11.
7	Replace the Feed motor and see if the error is corrected.	Feed motor 2: Refer to Section 6.15.10. Feed motor 1: Refer to Section 6.15.11.
8	Is the CCD Unit installed correctly?	ADF front scanning (Upper unit): Refer to Section 6.16.15.
9	Replace the CCD Unit and see if the error is corrected.	ADF back scanning (Base unit): Refer to Section 6.15.13.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	101/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

5.3.8 Vertical Streaks Appear in the Scanned Image

Table 5.3.8

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	Is the interface cable connected properly?
2 09	<p>When vertical streaks appear on the front side image, clean the scanning area of the front side and the front side background. ( area)</p> <p>When vertical streaks appear on the backside image, clean the scanning area of the backside and the backside background. ( area)</p>	<p>Refer to Section 3.2.5.</p>  <p>Front side: Vertical streaks and cleaning position are <u>the same side</u>. Vertical streaks on the left → Clean the left side. Vertical streaks on the right → Clean the right side.</p> <p>Backside: Vertical streaks and cleaning position are <u>left-right reversal</u>. Vertical streaks on the left → Clean the right side. Vertical streaks on the right → Clean the left side.</p> 
3 09	<p>After cleaning in step 2: If vertical streaks still appear on the front side image, clean inside of the glass, white reference of the Background unit, Lower, or inside of the glass ASSY of the front side. However, PA03450-D963 has the dust-proof material and cleaning its inside is impossible. Replace the Background unit, Lower. If vertical streaks still appear on the backside image, clean inside of the glass, white reference of the Background unit, Upper, or inside of the glass ASSY of the backside. However, PA03450-D964 has the dust-proof material and cleaning its inside is impossible. Replace the Background unit, Upper.</p>	<p>Cleaning: Refer to Section 6.3.2. Replacement: Background unit, Lower: Refer to Section 6.15.6. Background unit, Upper: Refer to Section 6.16.11.</p>

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	102/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Table 5.3.8 (Cont'd)

Item No.	Check items	How/where to check
4	Is the CCD Unit that scans the image with vertical streaks dirty? Are the cables damaged? Are the connectors connected properly?	Refer to Section 6.3.1 for cleaning the CCD unit. ADF front scanning (Upper unit): Refer to Section 6.16.15. ADF back scanning (Base unit): Refer to Section 6.15.13.
5	Replace the CCD Unit that scans the image with vertical streaks and see if the error is corrected.	See Item 4.
6	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.9 When White Level of Scanned Image is not proper

Table 5.3.9

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Are the scan settings (density, number of colors) correct for the scanner driver? Is the sheet guide (White part) in the ADF dirty?
2	Conduct the white level adjustment by Maintenance mode #4.	Refer to Section 7.1.5.

5.3.10 False "Hopper Empty" Error

Table 5.3.10

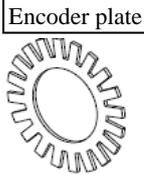
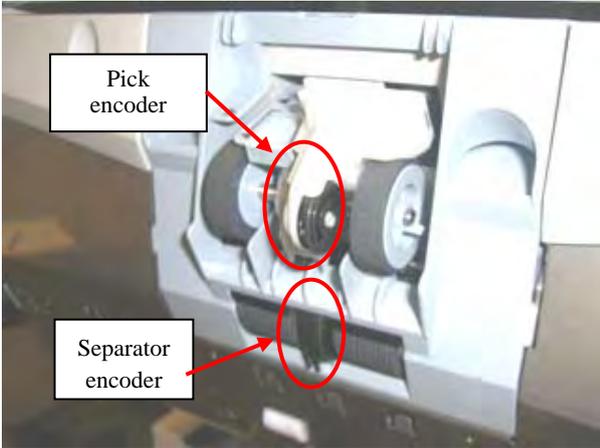
Item No.	Check items	How/where to check
1	Is the paper on the Hopper folded up, not pushing down on the Hopper Empty Sensor?	Flatten the paper, making sure it is not folded up, and rescan.
2	Does the same symptom occur after turning OFF and ON the scanner?	Press the "O" area of power switch to turn the scanner OFF, and press the "I" area to turn it ON.
3	Check the performance of the Hopper Empty sensor.	Conduct Maintenance mode #1 (Section 7.1.2) to see if the Hopper Empty sensor works properly. If the error is not corrected yet, confirm that the cable is properly connected. If the error still occurs, then replace the Hopper Empty sensor. (Section 6.18.3)

5.3.11 "U1:Frequent Document Jam Error" (Detail code: 31,34,35,3a,3b,3c,3d,3e,50,51,52,53,54,5a,5b,5c)

Table 5.3.11

Item No.	Check items	How/where to check
1	Set the Paper Thickness and re-check.	Refer to Section 3.1.9.
2	Do the documents satisfy the paper specification?	Refer to Section 1.2 for the paper specifications.
3	Clean the Pick rollers, the Separator rollers and the Brake rollers and see if the error is corrected.	Refer to Sections 3.2.3 and 3.2.4.
4	Clean the Feed rollers and the Pinch rollers and see if the error is corrected.	Refer to Sections 3.2.3 and 3.2.4.
5	Replace the Pick rollers, Separator rollers, the Brake roller and the Pad Assembly, and see if the error is corrected.	Refer to Section 3.3. Check the consumable counter in the Software Operation Panel (Section 3.3.2) or from the scanner Maintenance mode #5 (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace the consumables.
6	Check the performance of the Pick unit.	If the Pick Solenoid does not work correctly, replace it (Section 6.16.6).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	103/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
	DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai	

Item No.	Check items	How/where to check
7 07	<ul style="list-style-type: none"> - Detail code 51, 52 Check whether the adhesive on the following encoder plates (photo on the lower right) are peeled off. <ul style="list-style-type: none"> - Pick encoder (PIC-ENC-HOLD) - Separator encoder (SEP-ENC-HOLD) 	If encoder plates are peeled off, replace the separator unit. (Refer to Section 6.16.5.) <div style="text-align: center;">  <p>Encoder plate</p> </div> 
8 07	<ul style="list-style-type: none"> - Detail code 5a Clean the lenses of JAM1 sensor. <ul style="list-style-type: none"> - Detail code 5b Clean the lens of JAM2 sensor.	JAM1 sensor cleaning: Referring to Section 6.20.2, remove JAM1 sensor, and then clean two lenses of the sensor with a cotton swab. JAM2 sensor cleaning: Referring to Section 6.20.3, remove JAM2 sensor, and then clean two lenses of the sensor with a cotton swab.
9	Check the performance of Sensors for SF3, Sensors for JAM and Sensor PCA.	Conduct Maintenance mode #1 (Section 7.1.2) to see if the sensors work properly. If the error is not corrected, confirm the sensor cable connections. If the error still occurs, replace the Sensors. <ul style="list-style-type: none"> - Detail code 3a, 3b Imprinter Top sensor (IMP_TP_SE, Section 6.19.1) ----- - Detail code 31, 3c Read Top sensor (RED_TP_SE, Section 6.19.2) ----- - Detail code 3d, 3e Reject sensor (REJ_SE, Section 6.19.3) ----- - Detail code 34, 35 Exit sensor (EXT_SE, Section 6.20.1) ----- - Detail code 5a JAM1 sensor (Section 6.20.2) Note: This error occurs if Pinch roller 2 is installed left-right reversal. (Refer to Sections 9.2.2.1 and 9.5.3.2.) 04 <ul style="list-style-type: none"> - Detail code 5b JAM2 sensor (Section 6.20.3) ----- - Detail code 50, 51, 52 Pick sensor (PICK_SE, Section 6.15.4)
10	Replace the scanner Control PCA.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	104/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5.3.12 “U2: Frequent Multi feed Error” (Detail code: 55, 56)

Table 5.3.12

Item No.	Check items	How/where to check
1	Set the Paper Thickness and re-check.	Refer to Section 3.1.9.
2	Do the documents satisfy the paper specification?	Refer to Section 1.2 for paper specification, paying attention to the following points: <ul style="list-style-type: none"> • Is multi feed error detected by paper length when scanning documents with different length? • Are there perforations in the center of the documents?
3	Clean the Pick rollers, Separator rollers, Brake roller and Pad assembly.	Refer to Section 3.2 for cleaning the consumables.
4	Clean the Ultrasonic Sensors (US Sensors).	Clean the US sensors using a lint-free cloth moistened with ethyl alcohol or isopropyl alcohol.
5	Replace the Pick rollers, the Separator rollers, the Brake roller and the Pad Assembly, and see if the error is corrected.	Check the consumable counter in the Software Operation Panel (Section 3.2.2) or from Maintenance mode #5 (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace the consumables.
6	Check the performance of the Ultrasonic sensor (US Sensor).	Access the Maintenance mode #8 (Section 7.1.9) to test the US sensors. If the error is not corrected yet, confirm that the sensor cables are connected properly. If the error still occurs, replace the corresponding US sensor (Section 6.17).

5.3.13 False “ADF/Imprinter Cover Open” Error (Detail code: 4a)

Table 5.3.13

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Open the Cover, and see if there is a slip of paper stuck in the cover interlock switch?	- Detail code 4a Imprinter Cover Open Sensor (Section 6.21.2) ----- - No Detail code ADF Cover Open Sensor (Section 6.21.1)
3	Check the performance of Cover open sensors.	Access the Maintenance mode #1 (Section 7.1.2) to test the sensors. If the error is not corrected yet, confirm that the sensor cables are connected properly. If the error still occurs, replace the sensors.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	105/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.14 “U6: No Print cartridge” (with the Imprinter installed) (Detail code: b4, ba)

Table 5.3.14

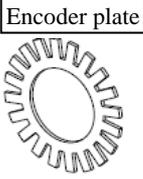
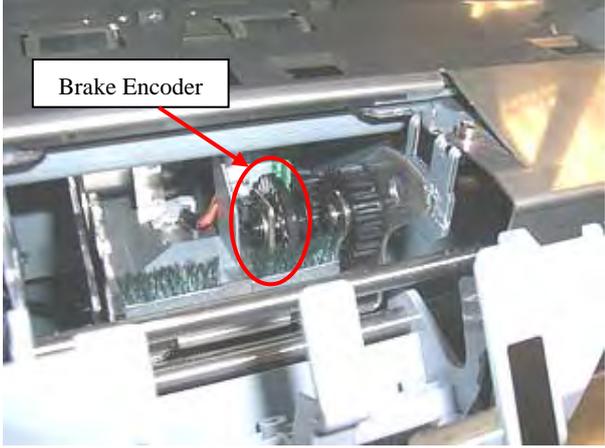
Item No.	Check items	How/where to check
1	Check whether the print cartridge is installed properly.	Refer to Section 9.2.3.
2	Remove the Print cartridge and check to see if electrodes on the mounting bracket are dirty.	Clean if dirty. Refer to Section 9.3.
3	Replace the Print cartridge and see if the error is corrected.	Refer to Section 9.4.
4	The communication between the Print cartridge and the Imprinter Control PCA may be defective. Confirm connection with the parts on the right, and replace if necessary.	- Detail code b4 (Post-Imprinter) <ul style="list-style-type: none"> Control PCA: Section 9.5.4.1 PRB Print ASSY: Section 9.5.4.3 Junction PCA: Section 9.5.4.4 <hr/> - Detail code ba (Pre-Imprinter) <ul style="list-style-type: none"> Control PCA: Section 9.5.3.1 PRF Print ASSY: Section 9.5.3.3 Junction PCA: Section 9.5.3.4
5	Replace the Imprinter Control PCA and see if the error is corrected.	See Item 4.

5.3.15 “U8 ADF Setup Error” (Detail code: 01, 02, 03, 04, 05, 06, 61, 64, 65)

Table 5.3.15

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	If the Pick roller unit is locked in the upper position, release (lower) the pick roller unit.	- Detail code 61 Refer to Section 3.1.12.
3	If the Hopper is overloaded, reduce the document load on the Hopper.	- Detail code 61 Refer to Section 3.1.5.
4	Set the Brake rollers and Separator rollers appropriately.	- Detail code 64 Brake roller: Section 3.3.6. Separator roller: Section 3.3.5 <hr/> - Detail code 65 Check the consumable counter in the Software Operation Panel (Section 3.2.2) or from Maintenance mode #5 (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace the consumables.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	106/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Item No.	Check items	How/where to check
5 07	<p>- Detail code 64, 65</p> <p>Check whether the adhesive on the following encoder plate (photo in the lower right) is peeled off.</p> <ul style="list-style-type: none"> - Brake Encoder (BRK-ENC-HOLD) - If the adhesive on the encoder plate is not peeled off, check whether any foreign objects get in around the Brake Encoder. 	<p>If encoder plates are peeled off, replace the separator unit. (Refer to Section 6.16.5.)</p> <div style="text-align: center;">  <p>Encoder plate</p> </div> <div style="text-align: center;">  <p>Brake Encoder</p> </div>
5 6	<p>If “Sensor(s) are dirty”, clean the sensors by referring to the list on the right.</p>	<p>Open the ADF and clean the front side of the Sensors and light reflectors on the transport path.</p> <ul style="list-style-type: none"> - Detail code 01 Pick sensor (PICK_SE, Section 6.15.4) ----- - Detail code 02 Skew sensors (SKEW_R1~R3_SE, L1~L3_SE, Section 6.15.4) ----- - Detail code 03 Imprinter Top sensor (IMP_TP_SE, Section 6.19.1) ----- - Detail code 04 Read Top sensor (RED_TP_SE, Section 6.19.2) ----- - Detail code 05 Reject sensor (REJ_SE, Section 6.19.3) ----- - Detail code 06 Exit sensor (EXT_SE, Section 6.20.1)
5 7	<p>If the error still occurs, replace the Sensor or the Sensor PCA and see if the error is corrected.</p>	<p>See Item 5.</p>
5 8	<p>Replace the Control PCA and see if the error is corrected.</p>	<p>Refer to Section 6.12.</p>

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	107/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.16 "E0: Hopper Overrun or Stacker Overrun Alarm" (Detail code: c0, c1)

Table 5.3.16

Item No.	Check items	How/where to check
1	When "Hopper Overrun" occurs, check if there is anything under the Hopper.	Refer to Section 6.5.1.
2	Does the same symptom occur after turning the scanner OFF and ON?	Press the "O" area of power switch to turn the scanner OFF, and press the "I" area to turn it ON.
3	Is there any slip of paper or foreign objects left near the related sensors?	- Detail code c0 Hopper Bottom Sensor (HPBTM_SE, Section 6.18.2) ----- - Detail code c1 Stacker Bottom Sensor (STKBTM_SE, Section 6.18.1)
4	Are the related cables damaged? Are the related connectors connected properly?	- Detail code c0 from the Control PCA to Hopper motor (Table motor, Section 6.15.12) from the Control PCA to Hopper Bottom sensor (HPBTM_SE, Section 6.18.2) ----- - Detail code c1 from the Driver PCA to Stacker motor (Table motor, Section 6.16.2) from the Driver PCA to Stacker Bottom sensor (STKBTM_SE, Section 6.18.1)
5	Replace the parts in the following procedure and find which is defective.	- Detail code c0 1. Hopper Bottom Sensor (HPBTM_SE, Section 6.18.2) 2. Hopper motor (Table motor, Section 6.15.12) 3. Control PCA (Section 6.12) ----- - Detail code c1 1. Stacker Bottom Sensor (STKBTM_SE, Section 6.18.1) 2. Stacker motor (Table motor, Section 6.16.2) 3. Driver PCA (Section 6.16.3) 4. Control PCA (Section 6.12)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	108/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.17 "E2 or E3: Optical Alarm" (Detail code:72, 73, 74, 75)

Ref) E2: ADF front side scanning optical alarm (upper CCD Unit in the Upper unit)

E3: ADF backside scanning optical alarm (lower CCD Unit in the Base unit)

Table 5.3.17

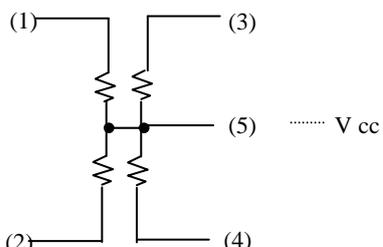
Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the "O" area of power switch to turn the scanner OFF, and press the "I" area to turn it ON.
2	E2 (front scan): Is the lower glass (sheet guide) of the reading section dirty? E3 (backside scan): Is the upper glass (sheet guide) of the reading section dirty?	Open the ADF, and clean the glass. (Refer to Section 3.2.) ----- - E2 (front scan) Background unit, Lower (Section 6.15.6) Background of the front side of the document ----- - E3 (back scan) Background unit, Upper (Section 6.16.11) Background of the backside of the document
3	E2 (front scan): Is the upper CCD Unit dirty? E3 (back scan): Is the lower CCD Unit dirty? Are the cables damaged? Are the connectors connected properly?	- E2 (front scan) Glass (Section 6.16.13) CCD unit (Sections 6.16.15 and 6.3.1) ----- - E3 (back scan) Glass (Section 6.15.8) CCD unit (Sections 6.15.13 and 6.3.1)
4	E2 (front scan): Is the upper lamp ON? E3 (back scan): Is the lower lamp ON? Are the cables damaged? Are the connectors connected properly?	Open the ADF, and turn ON the power of the scanner while pressing the ADF cover open sensor with a rod made of any material other than metal (refer to the photo in Section 7.1.2) to see if the lamps light. If the lamp does not light, the error is caused by defective lamps or inverter. ----- - E2 (front scan) Lamp (Section 6.16.13) Inverter (Section 6.16.14) ----- - E3 (back scan) Lamp (Section 6.15.8) Inverter (Section 6.15.9)
5	E2 (front scan): Replace the upper CCD Unit and see if the error is corrected. E3 (back scan): Replace the lower CCD Unit and see if the error is corrected.	-E2 (front scan) CCD unit (Section 6.16.15) ----- - E3 (back scan) CCD unit (Section 6.15.13)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	109/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.18 "E4: Motor Fuse Blown" (Detail code: 80, 81, 82, 88, 89, 8a)

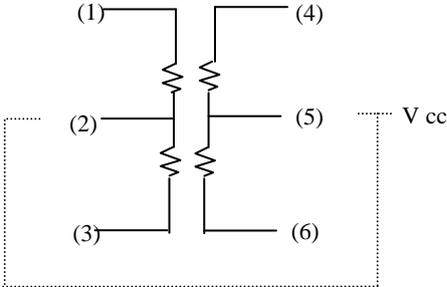
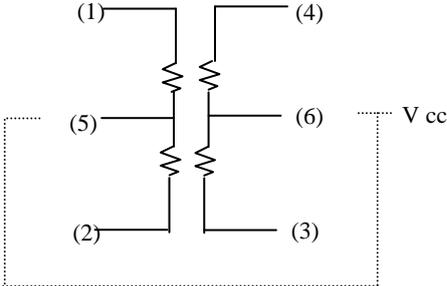
Note: Refer to Section 4.7 for where to install the Motors.

Table 5.3.18

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the "O" area of power switch to turn the scanner OFF, and press the "P" area to turn it ON.
2	Are there any foreign objects lying on the Control PCA or the Driver PCA?	- Control PCA: Section 6.12 - Driver PCA: Section 6.16.3
3	Are the cables between the Control PCA and the motors shown on the right, or between the Driver PCA and the motors shown on the right damaged? Are the connectors connected properly?	- Detail code 80 Feed motor 1: Section 6.15.11 ----- - Detail code 81 Separation motor: Section 6.16.4 ----- - Detail code 82 Pick Solenoid: Section 6.16.6 ----- - Detail code 88 BW motor (front) (Background motor): Section 6.15.7 Drives the background of the document front. or Hopper motor (Table motor): Section 6.15.12 ----- - Detail code 89 BW motor (back) (Background motor): Section 6.16.12 Drives the background of the document back. Stacker motor (Table motor): Section 6.16.2, or Pick motor (LF motor): Section 6.16.10 ----- - Detail code 8a Feed motor 2: Section 6.15.10
4	If the error still occurs, replace the motor, Pick Solenoid, and related Control PCA or Driver PCA and see if the error is corrected.	<u>Detail code '88':</u> <u>Overcurrent of BW motor (ADF front), or Hopper motor</u> Remove the motor cable to check the coil resistance between the following pins of the motor. If the resistance is not within specification, replace the corresponding motor and the Control PCA. Background motor, Front (BW motor) Resistance (1) – (2), (1) – (3), (1) – (4) : 36 ~ 44 Ohms Resistance (2) – (3), (2) – (4), (3) – (4) : 36 ~ 44 Ohms Resistance (5) – (1), (5) – (2), (5) – (3), (5) – (4): 18 ~ 22 Ohms Other match: : Infinite 

(Continued to next page)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	110/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

Item No.	Check items	How/where to check
4	Is the coil resistance of the motor normal?	<p>Hopper motor (Table motor)</p> <p>Resistance (2) – (1), (2) – (3): 1.5 ~ 2.0 Ohms Resistance (5) – (4), (5) – (5): 1.5 ~ 2.0 Ohms Resistance (1) – (3), (4) – (6): 3.0 ~ 4.0 Ohms Other match : Infinite</p>  <p>Detail code '89': Overcurrent of BW motor (ADF back), Stacker motor or Pick motor</p> <p>Remove the motor cable to check the coil resistance between the following pins of the motor. If the resistance is not within specification, replace the corresponding motor and the Driver PCA.</p> <p>Background motor, Back (BW motor) Refer to "Background motor, Front (BW motor) above.</p> <p>Stacker motor (Table motor) Refer to "Hopper motor (Table motor) above.</p> <p>Pick motor (LF motor)</p> <p>Resistance (5) – (1), (5) – (2) : 3.5 ~ 5.0 Ohms Resistance (6) – (4), (6) – (3) : 3.5 ~ 5.0 Ohms Resistance (1) – (2), (4) – (3) : 7.5 ~ 9.5 Ohms Other match : Infinite</p> 

(Continued to next page)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	111/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

Item No.	Check items	How/where to check
4		<p>(Reference) <u>Detail code '80': Overcurrent of Feed motor 1</u> <u>Detail code '81': Overcurrent of Separation motor</u> <u>Detail code '8a': Overcurrent of Feed motor 2</u></p> <p>Feed motors (Feed motor 1, Feed motor 2) , Separation motor</p> <p>Resistance (1) – (3), (1) – (2): 0.7 ~ 1.0 Ohm Resistance (7) – (8), (7) – (5): 0.7 ~ 1.0 Ohm Resistance (3) – (2), (8) – (5): 1.5 ~ 1.9 Ohms Other match: : Infinite</p> <p><u>Detail code: '82': Overcurrent of Pick Solenoid</u></p> <p>Pick Solenoid</p> <p>Resistance (1) – (2): 129 ~159 Ohms</p> <p>Pick solenoid connector Pick solenoid</p>

5.3.19 “E5: Lamp Fuse Blown” (Detail code: 84)

Table 5.3.19

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Are there any foreign objects lying on the Control PCA?	Remove the Control PCA and inspect. (Refer to section 6.12.)
3	Are the cables between the Control PCA and the Inverters damaged? Are the cables between the Inverters and the lamps damaged? Are the connectors connected properly?	Referring to the following sections, check the cables. Front side scanning - Lamp (Section 6.16.13) - Inverter (Section 6.16.14) Backside scanning - Lamp (Section 6.15.8) - Inverter (Section 6.15.9)
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5.3.20 “E6: Operator Panel Alarm”

Table 5.3.20

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Panel PCA and see if the error is corrected.	Refer to Section 6.7. Install the new Panel PCA after saving the EEPROM data (Section 7.2). Then access Maintenance mode #7 and restore the EEPROM information to the Panel PCA by referring to Section 7.1.8.

5.3.21 “E7: EEPROM Alarm” (Detail code: d2)

Table 5.3.21

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Panel PCA and see if the error is corrected.	Refer to Section 6.7. Install the new Panel PCA after saving the EEPROM data (Section 7.2). Then access Maintenance Mode #7 and restore the EEPROM information to the Panel PCA by referring to Section 7.1.8.
3	Replace the Control PCA or the SCSI cable and see if the error is corrected.	Refer to Section 6.12.

5.3.22 “E8: SCSI Fuse Blown”

Table 5.3.22

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Is this error caused by the SCSI cable or other SCSI devices connected to the bus?	You can still use this scanner even after the error has occurred. Go to next step only when you want to repair.
3	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.23 “E9: Memory Alarm” (Detail code: e4)

Table 5.3.23

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	113/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.24 “EA: Imprinter Alarm”(with the Imprinter installed) (Detail code: b2,b3,b5,b6,b8,b9,bb,bc,be,bf)

NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.24

Item No.	Check items	How/where to check
1	Check whether the print cartridge is installed properly.	Refer to Section 9.4.1. ----- - Detail code b2, b3, b5, b6, b8 Post-Imprinter ----- - Detail code b9, bb, bc, be, bf Pre-Imprinter
2	Clean the terminals on the Print cartridge and the electrodes on the mounting bracket.	Clean if dirty. Refer to Section 9.3.1.
3	Replace the print cartridge and see if the error is corrected.	Refer to Section 9.4.1.
4	Are both ends of the Imprinter cable connected properly?	Refer to Section 9.2.2.
5	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
6	Replace the Imprinter Control PCA and see if the error is corrected.	- Detail code b2, b3, b5, b6, b8 (Post-Imprinter) Post-Imprinter: Refer to Section 9.5.4.1. ----- - Detail code b9, bb, bc, be, bf (Pre-Imprinter) Pre-Imprinter: Refer to Section 9.5.3.1.
7	Replace the scanner Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.25 “Ec: RAM Alarm” (Detail code: e5, e6)

Table 5.3.25

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.26 “Ed: SPC Alarm”

Table 5.3.26

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	114/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	114/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5.3.27 “EF: Background Switch Alarm” (Detail code: c2, c3)

Table 5.3.27

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Are the cables between the Control PCA, the background motor (BW motor) and the background position detection sensor damaged? Are the connectors connected properly?	- Detail code c2 (front side scanning) Background motor (BW motor, Section 6.15.7) Drives the background of the document front Background position detection sensor (Section 6.18.4) Detects the background position of the document front ----- - Detail code c3 (backside scanning) Background motor (BW motor, Section 6.16.12) Drives the background of the document back. Background position detection sensor (Section 6.18.5) Detects the background position of the document back
3	Check if the BW motor performs correctly.	Open the ADF, and turn ON the power of the scanner while pressing the ADF cover open sensor with a rod made of any material other than metal (refer to the photo in Section 7.1.2) If the background unit does not work properly, replace the parts in the following order and find defective parts. ----- - Detail code c2 (front scanning) 1) Background motor (BW motor, Section 6.15.7) 2) Background position detection sensor (Section 6.18.4) 3) Background unit, Lower (Section 6.15.6) 4) Control PCA (Section 6.12) ----- - Detail code c3 (backside scanning) 1) Background motor (BW motor, Section 6.16.12) 2) Background position detection sensor (Section 6.18.5) 3) Background unit, Upper (Section 6.16.11) 4) Control PCA (Section 6.12)

5.3.28 “E11: Fan Alarm” (Detail code: ec)

Table 5.3.28

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press “O” area of power switch to turn the scanner OFF, and press “I” area to turn it ON.
2	Check if the Fan ASSY cable is not damaged and if the connectors are connected properly, then replace the Fan ASSY.	Refer to Section 6.10.2.
3	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	115/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.29 “E12: Heater Alarm” (Detail code: 92, 93)

NOTICE

Scanning is still available even when the heater alarm occurs. Once it occurs after power-on and is canceled, this alarm will not be detected until next power OFF/ON. If the heaters are not operating properly, image quality may be affected.

Table 5.3.29

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Are the cables between the Control PCA and the Inverters damaged? Are the cables between the Inverters and the lamps damaged?	- Detail code 92 (front scanning) Inverter (Section 6.16.14) Lamp (Section 6.16.13) ----- - Detail code 93 (backside scanning) Inverter (Section 6.15.9) Lamp (Section 6.15.8)
3	Replace the front side or backside lamps and see if the error is corrected.	- Detail code 92 (front scanning) Lamp (Section 6.16.13) ----- - Detail code 93 (backside scanning) Lamp (Section 6.15.8)
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.30 “E15: Extended Memory Alarm” (Detail code: ee)

Table 5.3.30

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON? This alarm is displayed 3 times (blinking) before “P” is displayed immediately after power-on.	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Confirm that the both the installed extended DIMM’s are the recommended type and are the same.	Refer to Section 1.1.2. If the memory DIMM’s are not the recommended type, ask the user to install the recommended ones.
3	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.31 “E16: Option Board Alarm” (Detail code: ed)

NOTICE 04

If the CGA board of the VRS image processing option is in use, this error will not occur. When the CGA board is abnormal, both orange and green LEDs will either flash or light. (Refer to Section 5.3.2 “Scanning does not start”.)

Table 5.3.31

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Is the Option board correctly installed?	Refer to Section 1.1.5 (2). CGA board of the VRS image processing option, or third party option board 04
3	Replace the Back Panel PCA and see if the error is corrected.	Refer to Section 6.11.
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.
5	Replace the Option board and see if the error is corrected.	Refer to Section 1.1.5 (2). CGA board of the VRS image processing option, or third party option board 04

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 116/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	116/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

5.3.32 “E17: Imprinter Fuse Blown” (with the Imprinter installed) (Detail code: b1)

NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.32

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Check whether the cause is the scanner or the imprinter.	Turn the scanner OFF, and disconnect the Imprinter (option). After 10 minutes, turn the scanner ON. - Imprinter fuse blown: Go to item 3. - Imprinter fuse not blown: Go to item 5.
3	Are there any foreign objects lying on the Control PCA?	Referring to Section 6.12, remove the Control PCA and inspect it.
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.
5	Are there any foreign objects lying on the Imprinter Control PCA?	Pre-Imprinter: Refer to Section 9.5.3.1. Post-Imprinter: Refer to Section 9.5.4.1.
6	Replace the Imprinter Control PCA and see if the error is corrected.	See Item 5.

5.3.33 “E18: Sensor Alarm” (Detail code: 11, 12, 13, 14, 15, 17, 1b)

Table 5.3.33

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Are the cables between the Control PCA and the sensors damaged? Are the connectors connected properly?	- Detail code 1b Ultrasonic sensor (US sensor, Sections 6.17.1, 6.17.2) ----- - Detail code 11 Pick sensor (PICK_SE, Section 6.15.4) ----- - Detail code 17 Skew sensor (SKEW_R1~R3_SE, L1~L3_SE, Section 6.15.4) ----- - Detail code 12 Imprinter Top sensor (IMP_TP_SE, Section 6.19) ----- - Detail code 13 Read Top sensor (RED_TP_SE, Section 6.19) ----- - Detail code 15 Reject sensor (REJ_SE, Section 6.19) ----- - Detail code 14 Exit sensor (EXT_SE, Section 6.20)
3	If the error still occurs after Item 2, replace the sensor and PCAs and see if the error is corrected.	See Item 2. If the error still occurs after replacing the US Sensor, replace the US PCA.
4	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	117/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	117/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5.3.34 “E19: LSI Alarm” (Detail code: 86, e9,ea)

Table 5.3.34

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Control PCA and see if the error is corrected.	Refer to section 6.12.

5.3.35 “E1A: Internal Scanner Communication Error” (Detail code: f0, f1, f4, fa, fb, fc)

Table 5.3.35

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Are the cable connectors between the Control PCA and the Driver PCA connected properly?	The connectors to be checked when E1A alarm occurs are as below: 1. Driver PCA: CN11, CN12 (Refer to Section 6.16.3) 2. Control PCA: CN20, CN23 (both connectors are vis-à-vis Driver PCA connectors, Refer to Section 6.12)
3	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.
4	Replace the Driver PCA and see if the error is corrected.	Refer to Section 6.16.3.
5	Replace the cables between the Control PCA and the Driver PCA and see if the error is corrected.	Refer to Item 2 for the E1A-related cable connectors.

5.3.36 “F: Flash Memory Check Sum Error”

Table 5.3.36

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning the scanner OFF and ON?	Press the “O” area of power switch to turn the scanner OFF, and press the “I” area to turn it ON.
2	Replace the Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.37 “Imprinter does not operate initially” (with the Imprinter installed)



NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.37

Item No.	Check items	How/where to check
1	Check if the Imprinter cable is connected to the Control PCA properly.	The cable shown in Section 9.2.2.
2	Replace the Imprinter Control PCA and see if the error is corrected.	Pre-Imprinter: Refer to Section 9.5.3.1. Post-Imprinter: Refer to Section 9.5.4.1.
3	Replace the scanner Control PCA and see if the error is corrected.	Refer to Section 6.12.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	118/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

5.3.38 “No imprinting / Imprinting Distortion” (with the Imprinter installed)

NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.38

Item No.	Check items	How/where to check
1	Check if the screen in Section 9.4.1 is displayed.	Replace the print cartridge if displayed to do so. (Refer to Section 9.4.1.)
2	Turn the scanner ON/OFF several times, and try imprinting again. Does the same symptom occur? (Be sure to turn OFF the scanner after it becomes READY.)	
3	Clean the print cartridge nozzle and see if the error is corrected.	Refer to Section 9.3.1.
4	The communication between the print cartridge and the Control PCA may be defective. Confirm the connections with the parts listed on the right, and replace if necessary.	Pre-Imprinter - PRF Print ASSY: Section 9.5.3.3 - Junction PCA: Section 9.5.3.4 Post-Imprinter - PRB Print ASSY: Section 9.5.4.3 - Junction PCA: Section 9.5.4.4
5	Replace the Imprinter Control PCA and see if the error is corrected.	Pre-Imprinter: Refer to Section 9.5.3.1. Post-Imprinter: Refer to Section 9.5.4.1.
6	Replace the scanner Control PCA and see if the error is corrected.	Refer to Section 6.12.

5.3.39 “Scanned Form is Dirty” (with the Imprinter installed)

NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.39

Item No.	Check items	How/where to check
1	Is the Imprinter sheet guide dirty with ink?	If dirty, clean it by referring to Sections 9.4.1 to 9.4.3.

5.3.40 “Imprinting Area is out of Paper” (with the Imprinter installed)

NOTICE

Both Pre-Imprinter and Post-Imprinter can be installed in one scanner, but two of them cannot be used at the same time.

Table 5.3.40

Item No.	Check items	How/where to check
1	Is the imprinting position specified within the printable area?	- Refer to Section 9.1.1 for printable area and Section 9.3.2 for the print setup. - Check if the document of the specified size (length) is loaded on the Hopper.
2	The communication between the print cartridge and the Imprinter Control PCA may be defective. Confirm the connections with the parts listed on the right, and replace if necessary.	Pre-Imprinter - PRF Print ASSY: Section 9.5.3.3 - Junction PCA: Section 9.5.3.4 Post-Imprinter - PRB Print ASSY: Section 9.5.4.3 - Junction PCA: Section 9.5.4.4
3	Replace the Imprinter Control PCA and see if the error is corrected.	Pre-Imprinter: Refer to Section 9.5.3.1. Post-Imprinter: Refer to Section 9.5.4.1.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	119/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 6 Maintenance Procedure

This chapter describes how to replace maintenance parts, and clean the scanner to ensure normal operation. When assembling the maintenance parts, perform necessary cleaning when instructed in this manual.

6.1 For Safety Operation

Please read this page carefully before disassembling or assembling.



WARNING

Electric shock

Before disassembling or assembling, turn the power switch off, and unplug the AC power source from the outlet. If you do not do this, an electric shock may occur.



CAUTION

Injury

Be careful not to get your fingers, hair, clothes or accessories caught in a moving part. It may cause injury.

Machine damage

Static Electricity may cause the damage to the scanner.

When replacing the scanner, wear a wrist strap to avoid ESD.

Note when cleaning

When cleaning the scanner, be careful not to allow the foreign matter, such as dried ink and toner, to fall inside the scanner.

Note when opening/closing Upper unit (ADF cover)

When opening or closing the Upper unit (ADF cover), be careful not to get your hands pinched between the upper transport unit and lower transport unit.

- * **Screws and springs may accidentally drop inside of the unit.**

It is recommended to cover the unit with a sheet of paper or cloth before starting working.

- * **Be careful not to drop any parts on the lower transport unit while working on replacing parts of the Upper Unit (ADF Cover).**
- * **Be careful not to damage the glass parts.**
- * **Wipe any smudge and fingerprints at the entire transport path (stainless parts, glasses, sensors).**

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE 120/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.2 Periodic Maintenance

Periodic maintenance should be performed on the scanner at the following intervals.

Item	Maintenance cycle
Periodic maintenance	Every 12 months

At maintenance, clean each unit if dirty. (Refer to Section 3.2.) 05

6.3 Cleaning the Maintenance Parts

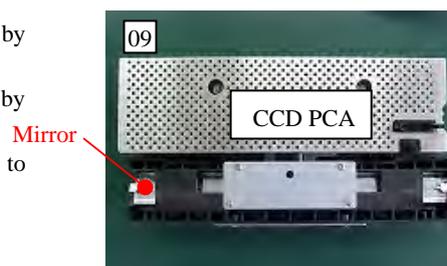
6.3.1 Cleaning the CCD Unit

Clean the CCD Unit in the following procedure.

(1) To clean the CCD Unit (at rear of the Base unit), remove it by referring to Section 6.15.13.

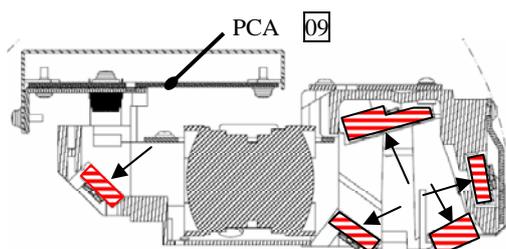
To clean the CCD Unit (at rear of the Upper unit), remove it by referring to Section 6.16.15.

(2) Place the CCD Unit with the opening side down (PCA side up) to avoid dust getting in. (photo on the right) 09



09

(3) Clean the mirror on the PCA side first. Remove any dirt on the inside of the mirrors (arrows in the photo below) and lenses of the CCD Unit with blow brush (see the photo below). No not use air sprays to avoid dew condensation on the mirrors. 07



07

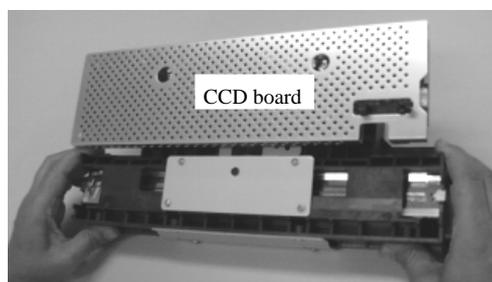
Notes:

- Do not loosen any parts (PCA's, mirrors) of this unit as described in Section 6.4.1. 09

- When you hold the CCD Unit, be careful about the following points.

1. Do not hold the CCD boards and mirrors directly with your hands.

Hold the black frame area as shown below.



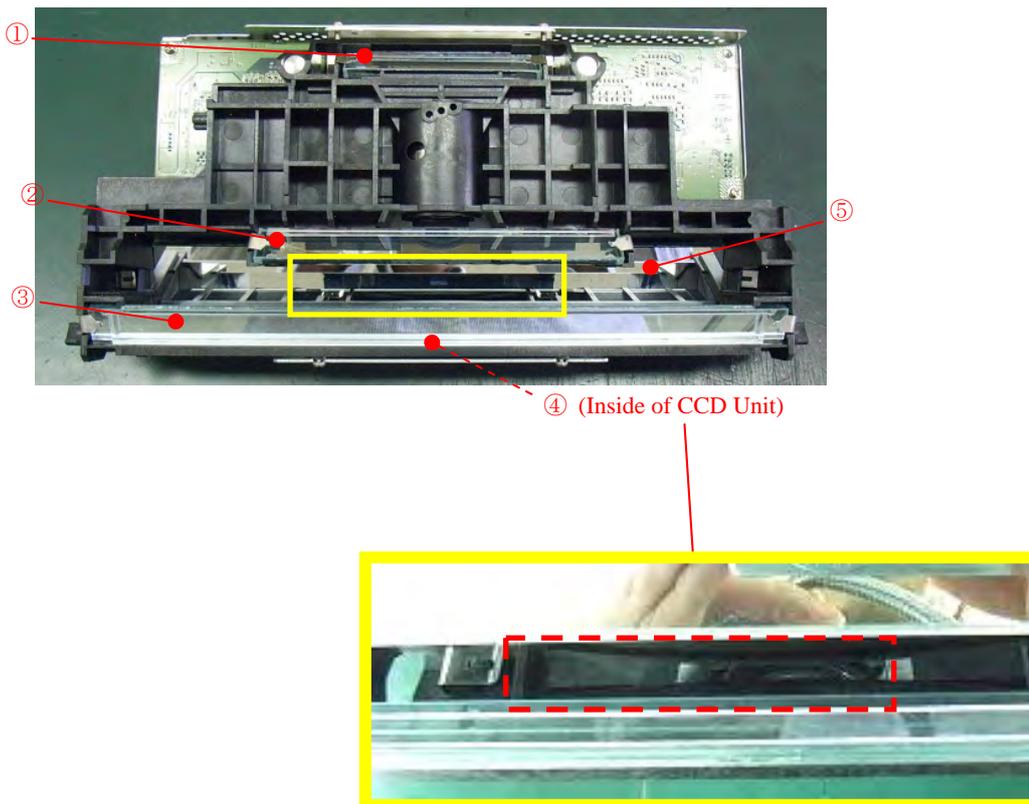
2. Do not touch the CCD boards and mirrors directly with your hands.

If you touch the mirrors, wipe off the fingerprints.

3. Do not add strong external force for CCD boards or mirrors.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 121/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	121/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(4) Turn the CCD unit over, and clean the mirrors in the same way. 09



(5) Referring to Section 6.15.13 (Base unit) or Section 6.16.15 (Upper unit), install the CCD unit. 09

(6) After installation, perform offset adjustment (Section 7.1.4) and white level adjustment (Section 7.1.5). 09

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	122/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.3.2 Cleaning inside of Background units, Lower/Upper, and Lamp Units (Base/Upper units)

Referring to Section 3.2.5, wipe the glass and white reference areas with a lint-free **dry** cloth. Be sure to wipe in one direction from end to end.

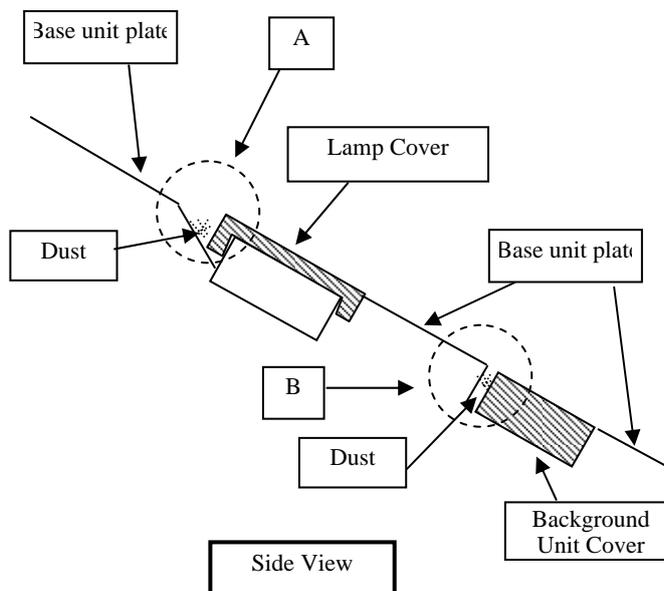
Do not use alcohol. If the glass and white reference areas are not cleaned completely, dampen a cloth with alcohol, and wipe in one direction and **be sure to finish with a dry cloth.**

If vertical streaks still appear after cleaning as described above, clean inside of the units in the procedure below.

Base Unit

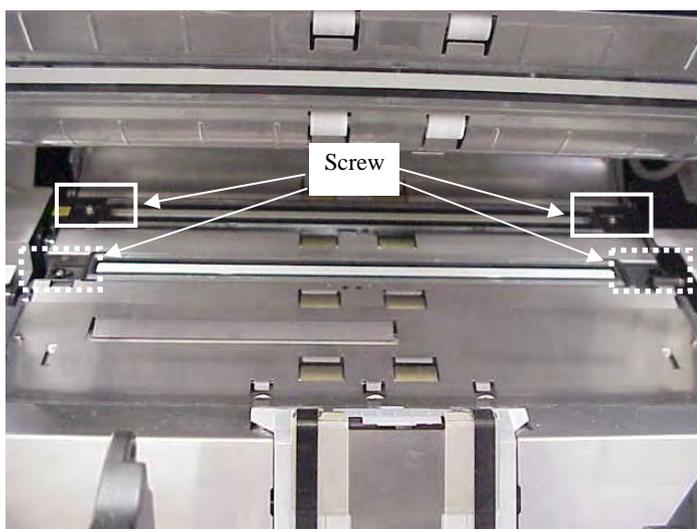
(1) Remove dust at areas A and B in the figure below.

Dust and paper dust accumulates in these areas easily and may drop in the scanner when removing the Lamp cover and Background unit cover. Be sure to eliminate the dust with a vacuum cleaner **before loosening the screws.**



(2) Remove four screws, and then the Background unit cover and Lamp cover.

Note: The background unit covers on the Base unit and the Upper unit are the same appearance, but the glasses are attached to the different positions. If removing them at a time, place them separately to distinguish, or work one background unit cover at a time.

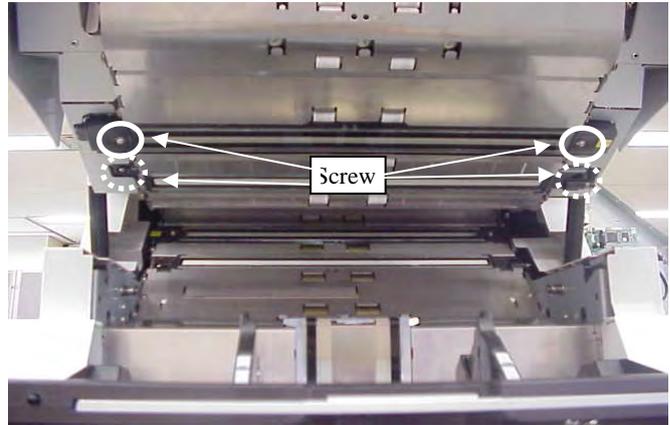


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 123/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Upper Unit

(1) Supporting the Background unit cover with a hand, remove four screws.

Note: The background unit covers on the Base unit and the Upper unit are the same appearance, but the glasses are attached to the different positions. If removing them at a time, place them separately to distinguish, or work one background unit cover at a time.



(2) Remove the Background unit cover and Lamp cover.

Base Unit and Upper Unit

(3) Check whether a dust-proof material is pasted on the Background unit cover. If cleaning is possible, go to step (4).

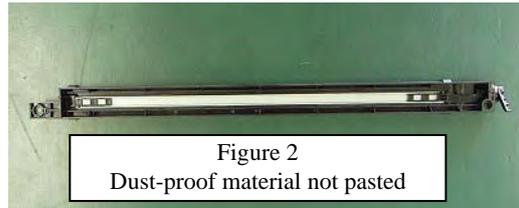
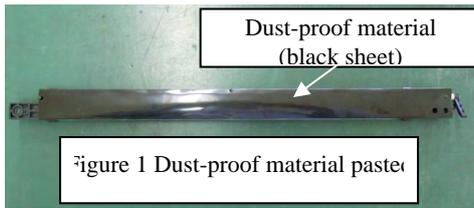


Figure 1: Cleaning is impossible because the dust-proof material is pasted. If there is paper dust inside of the glass, replace the background unit.

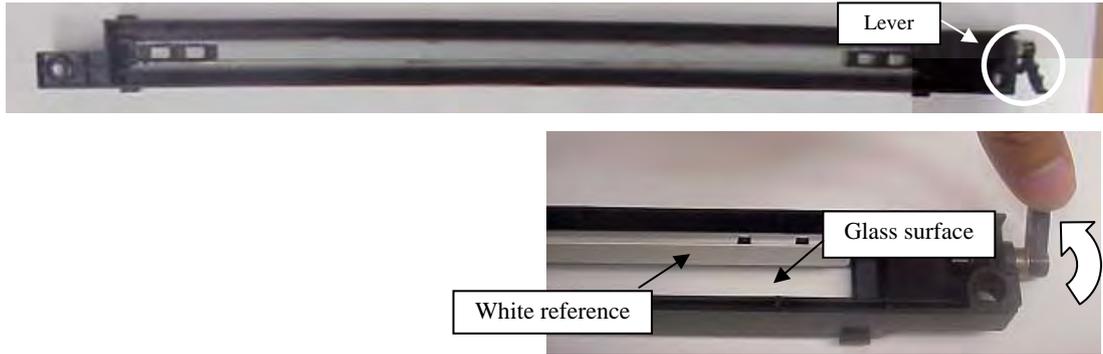
Figure 2: Cleaning is possible because the dust-proof material is not pasted.

* The Background unit with a dust-proof material and that without the material has different part numbers.

Description	Part number	Dust-proof material	Cleaning inside of the glass
Background unit, Lower	PA03450-D963	Pasted (Figure 1)	Impossible (Replace the Background unit, Lower if there is dust paper inside of the glass.)
	PA03450-D913	Not pasted (Figure 2)	Possible
Background unit, Upper	PA03450-D964	Pasted (Figure 1)	Impossible (Replace the Background unit, Upper if there is dust paper inside of the glass.)
	PA03450-D914	Not pasted (Figure 2)	Possible

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 124/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	124/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

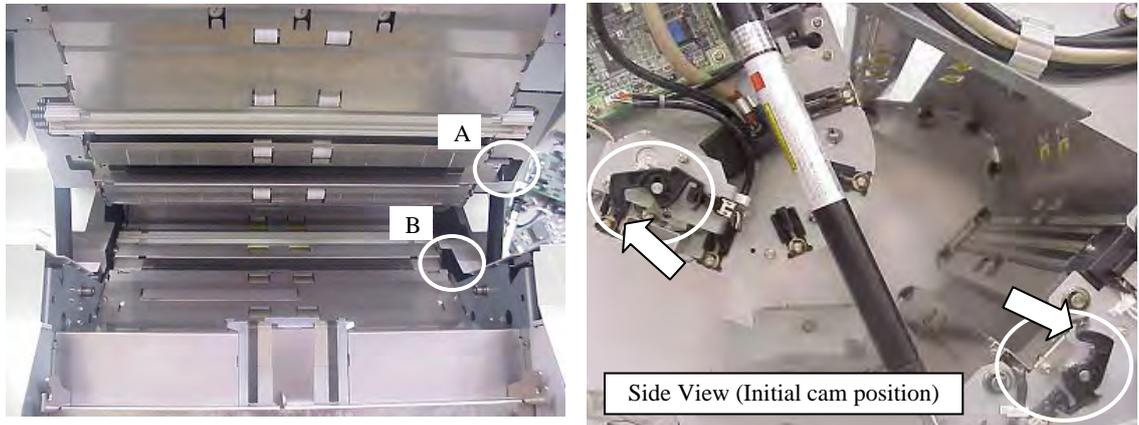
(4) Turn the lever as shown in the photo to turn the white reference in the same direction.



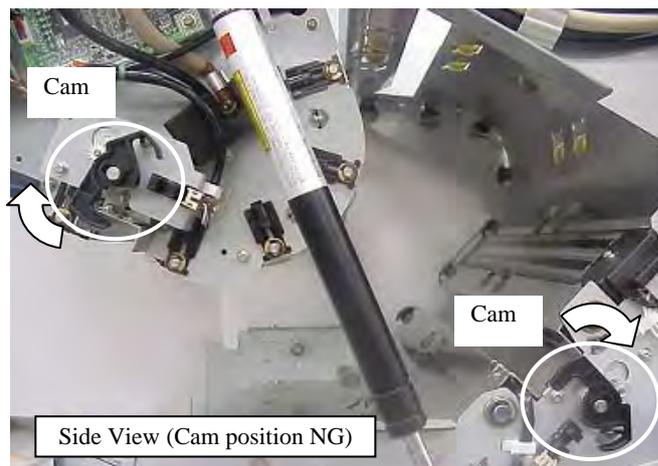
(5) Wipe the white reference and the glass with a clean cloth in one direction.
Vacuum the dust gathering to one side or the area that cannot be wiped with a cloth.

(6) In the same way, wipe the Lamp cover with a clean cloth in one direction.
Vacuum the dust gathering to one side or the area that cannot be wiped with a cloth.

(7) Check the cam positions before installing the Background unit cover.
Insert fingers into the holes A and B (lower left photo), and then push the cams to check if they are placed in the directions shown in the lower right photo.



* If the cams are in the positions as shown below, adjust them to be placed in the initial position.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 125/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	125/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

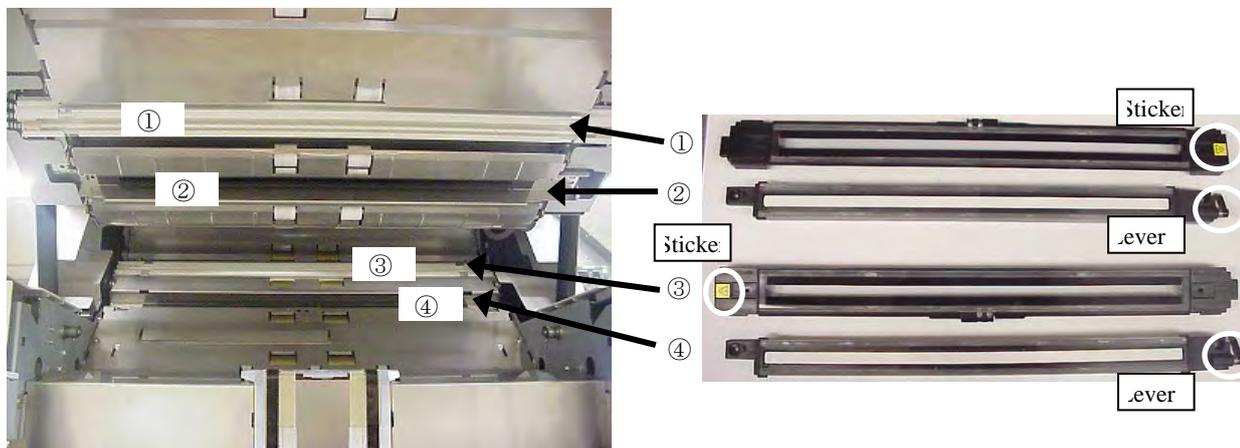
(8) Install the Background unit cover and Lamp cover.

Refer to the sticker and lever positions on the lower right photo for the direction of each cover before installation.

Fix (1) and (3) with long screws (A in the photo on the right), and fix (2) and (4) with short screws (B in the photo on the right).

* (1) and (3) are the same parts.

(2) and (4) are the same appearance, but the glasses are pasted in different positions. After cleaning, be sure to install the Background unit cover to the proper Background unit.



(9) After installing the Background unit covers and the Lamp covers, clean the exteriors again.

(10) Perform the offset adjustment (Section 7.1.4) and white level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	126/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.4 Maintenance Tools

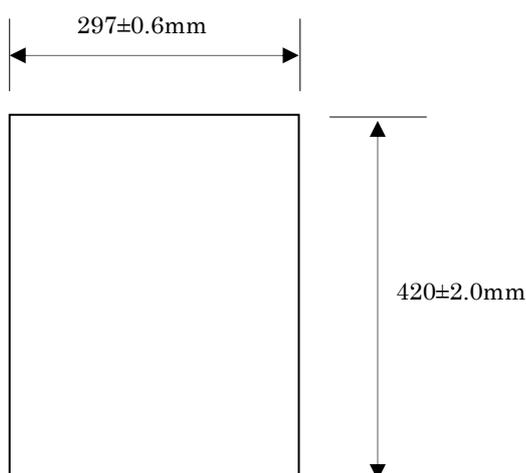
Special tools to maintain this scanner are shown in the following table.

No.	Tools	When to use	Remarks
1	Phillips screwdriver		For M3, M4
2	Small Phillips screwdriver	Removing MICROSWITCH	For M2, M2.5
3	Spring gauge	Adjusting Belt tension	500gf
4	Spring gauge	Adjusting Best tension	110gf
5	Alcohol	Cleaning	Ethyl alcohol or isopropyl alcohol
6	Blower brush	Cleaning Mirror	CCD Unit
7	Small flat-blade screwdriver	Removing sensors and rings	
8	Long-nose plier	Installing E ring	
9	Thickness gauge	Amount of projection	Refer to Base unit guide 1 (paper guide) in Section 6.15.1
10	Offset / Magnification adjustment sheet	Adjusting offset / Magnification	Prepare the sheet below in advance. Required for Magnification / Offset adjustment after replacing the following parts: - Read Top Sensor (Section 6.19.2) - Background Unit, Lower (Section 6.15.6) - CCD Unit (Section 6.15.13) - CCD Unit (Section 6.16.15)
11	US sensor adjustment sheet (PA03296-Y990) 04	Adjusting US sensor	Maintenance tool Required for US Sensor adjustment after replacing the following parts: - US Sensor (Section 6.17.1) - US Sensor (Section 6.17.2)
12	White level adjustment sheet (PA03277-Y123) 04	Adjusting White level	Maintenance tool Required for White level adjustment after replacing the following parts: - Background Unit, Lower (Section 6.15.6) - Background Unit, Upper (Section 6.16.11) - Lamp (Section 6.15.8) - Lamp (Section 6.16.13) - CCD Unit (Section 6.15.13) - CCD Unit (Section 6.16.15)
13 09	Vacuum cleaner	Cleaning Background units (Section 3.2.5, 6.3.2)	Commercial item

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	127/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

- Test sheet

The test sheet for Offset/magnification adjustment is as follows. (A3 copy paper is allowed.)



09

6.4.1 The Parts that should not be Disassembled

CAUTION

The following screws are adjusted and secured at the factory. Do not attempt to disassemble or loosen them.

(1) CCD Unit

Do not loosen any parts (PCA's, mirrors) of this unit including the screws. 07

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			128/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

6.5 Replacing the Hopper Unit, Stopper, Stacker Unit and Stacker Slide 3 ASSY

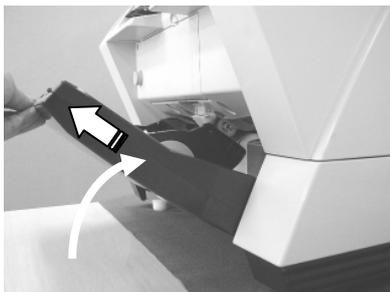
6.5.1 How to remove/install the Hopper Unit

 **NOTICE**

Refer to Section 8.42 for the part number of the replacement parts.

<Removal>

Raise the front of the Hopper Unit approx. 45 degrees and pull it out toward you to remove.



<Installation>

Follow the procedure above in reverse.

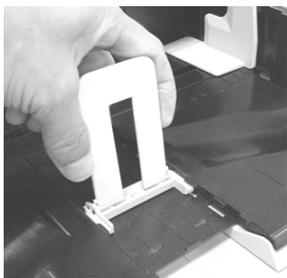
6.5.2 How to remove/install the Stopper

 **NOTICE**

- The Stopper is attached to the Stacker. It is the part for preventing documents from falling off.
- Refer to Section 8.45 for the part number of the replacement parts.

<Removal>

Pinch the Stopper close its hinge point and pull up to remove from the Stacker Unit.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	129/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

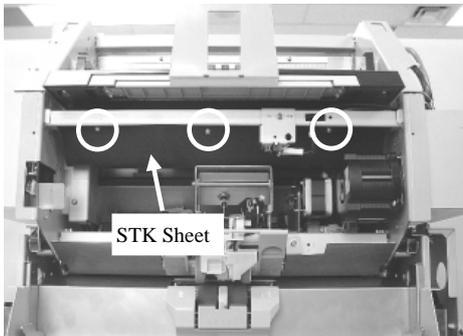
6.5.3 How to remove/install Stacker Unit

NOTICE

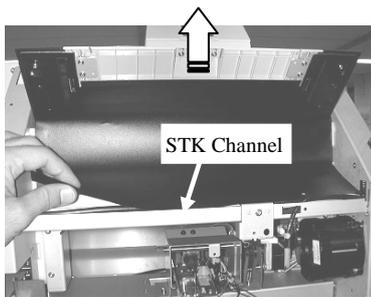
Refer to Section 8.43 for the part number of the replacement parts.

<Removal>

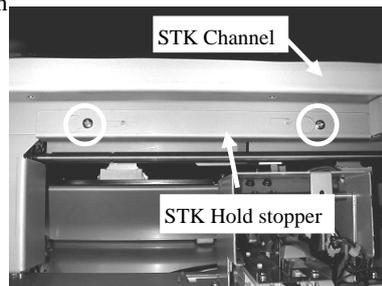
- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Remove three (3) screws (circles in the photo below) of the STK sheet.



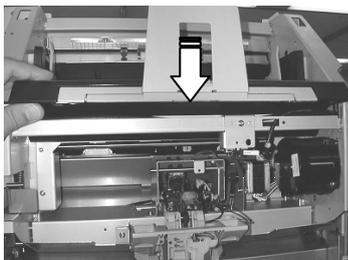
- (4) Lift the front of the Stacker upward and place the STK sheet on the STK channel.
Note: Be careful not to crease the STK sheet.



- (5) Loosen two (2) screws (circles in the photo below) located on the STK hold stopper under the STK channel.
- (6) Slide the STK hold stopper and remove it.



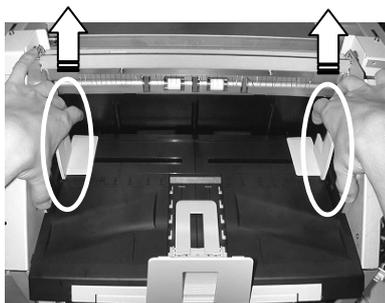
- (7) Lower the front of the stacker and return the stacker to the horizontal position.



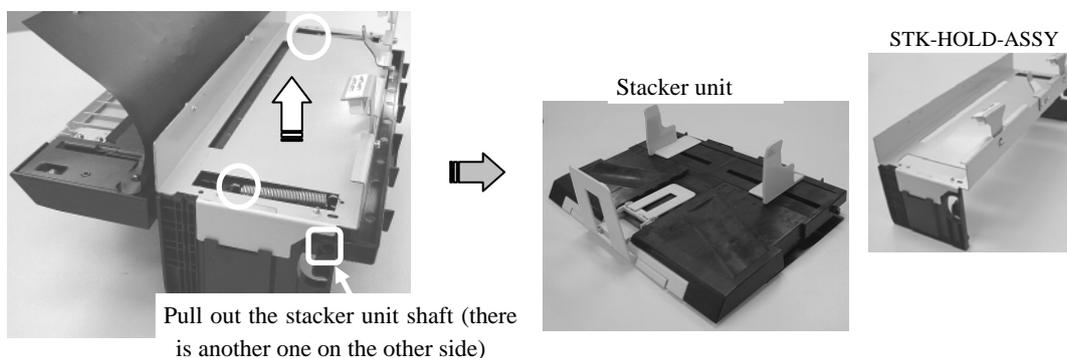
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 130/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	130/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(8) Hold both sides of the stacker with your hands as shown below, lift it upward to remove.

Note: When removing the stacker, close the Upper unit (ADF cover).



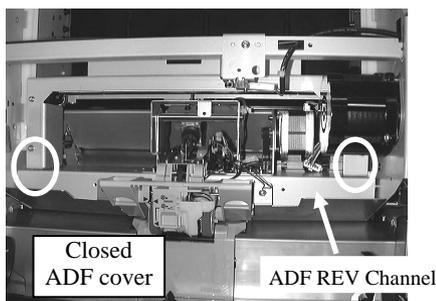
(9) Unhook two (2) spring hooks (circles in the photo below) at the rear of the Stacker. Raise the STK-HOLD-ASSY and remove it. At the same time, pull the shaft on the both sides of the Stacker unit out of the STK-HOLD-ASSY hole.



<Installation>

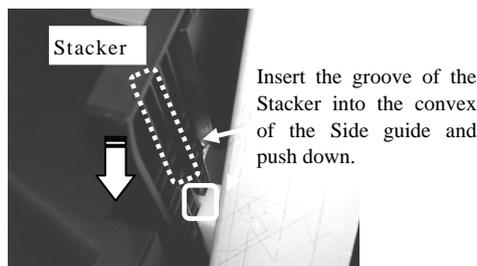
- (1) Make sure the Upper Unit (ADF Cover) is closed.
- (2) Push down evenly on the Lift ASSY until it is all the way down.

Note: Make sure that two (2) legs (circles in the photo below) at the both sides of the Lift ASSY are touching (horizontal) the ADF REV channel.



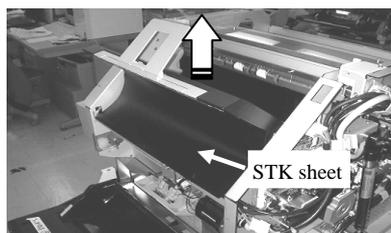
- (3) Fit the grooves (dotted square in the photo on the left) on each side of the Stacker onto the white slide guides (solid square in the photo on the left) mounted on the Upper unit frame and slide down in to place.

Note: Make sure that the stacker is horizontal.

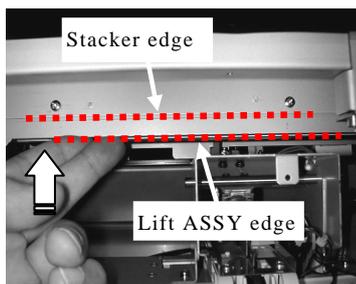


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	131/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

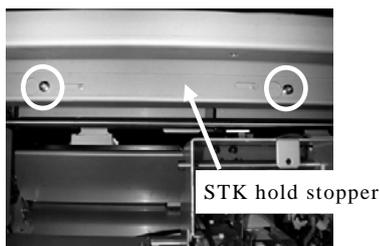
- (4) For easy installation of the STK hold stopper, lift the front of the stacker upward and place the STK sheet on the STK channel.



- (5) Raise the Lift ASSY until its bottom edge (lower dotted line in the photo below) aligns with the edge of the Stacker (upper dotted line in the photo below). This will allow easy placement of the STK hold stopper.



- (6) Install the STK hold stopper and tighten two (2) screws (circles in the photo below).

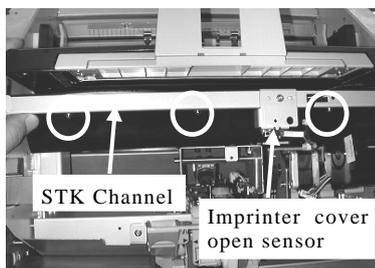


- (7) Insert the STK sheet in the opening between the STK channel and the Imprinter Cover Open Sensor, then align three (3) screw holes of the STK sheet with three (3) screw hole of the STK channel (circles in the photo below).

- (8) Fix three (3) screws to secure the STK sheet.

Notes: - Be careful not to crease the STK sheet.

- Spread the STK sheet for easier hole alignment and to avoid creasing.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	132/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.5.4 How to remove/install Stacker Slide 3 ASSY

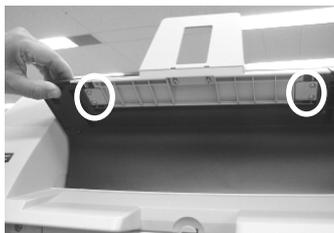
NOTICE

- Refer to Section 8.44 for the part number of the replacement parts.

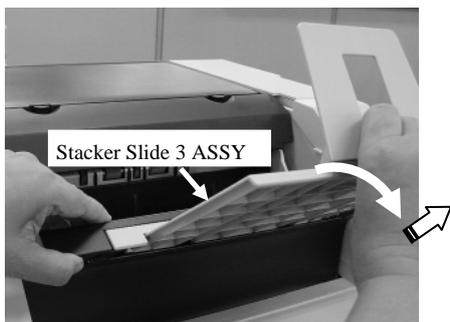
<Removal>

- (1) Raise the front of the Stacker upward, remove four (4) screws (circles in the photo below) at the bottom of the Stacker Unit and remove two (2) brackets at both sides.

Note: Be careful not to drop the screws or the brackets in to the Hopper.



- (2) Pull out the Stacker Slide 3 ASSY, gently push down on the front and pull out to remove.



<Installation>

Insert two (2) projections of the Stacker Slide 3-ASSY into the stacker to install it.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	133/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.6 Replacing the Covers

Before removing the covers, disconnect the scanner power.

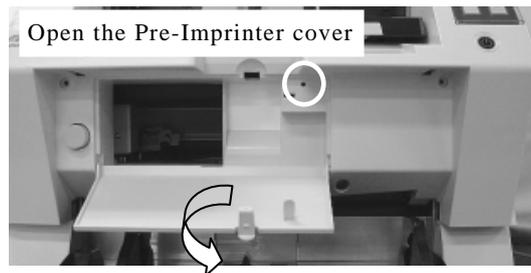
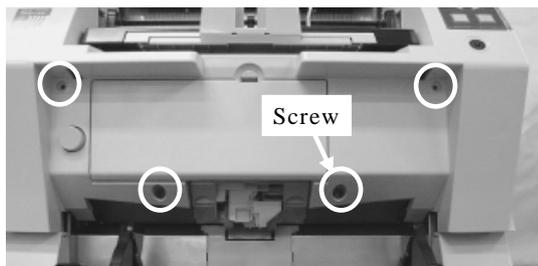
- (1) Turn off the main power switch at the rear of the scanner.
- (2) Detach the AC cable and interface cable from the rear of the scanner.

6.6.1 Front Cover

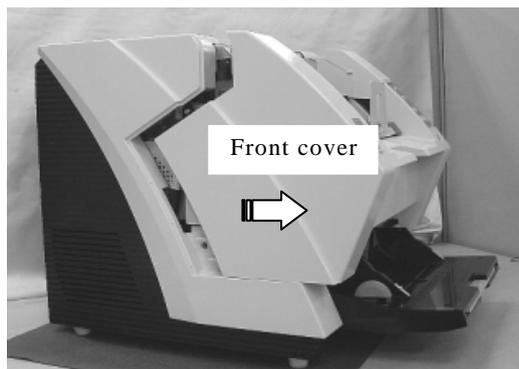
<Removal>

- (1) Referring to Section 6.7, disconnect the (1) connector from the Panel PCA.
- (2) Remove five (5) screws (circles in the photos below) that secure the Front cover.

09 Note: These screws are shorter than those that are used in other areas. Do not confuse with other screws.

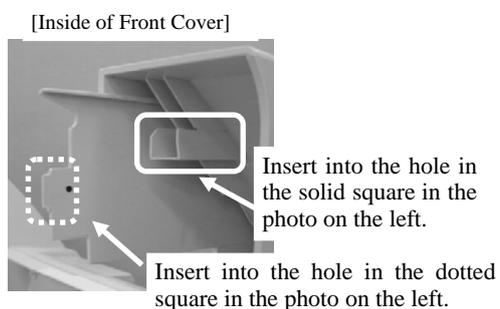
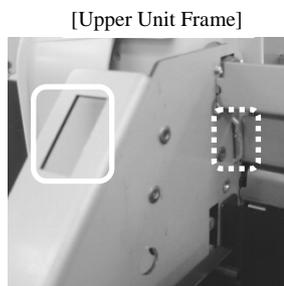


- (3) Slide the Front cover horizontally toward the front of the scanner to remove.



<Installation>

- (1) Close the Upper Unit (ADF cover) and slide the Front Cover on until it stops while the Pre-Imprinter Cover is open.
- (2) Insert two (2) claws (square in the photo on the lower right) on the Front Cover into the holes on the Upper unit frame.

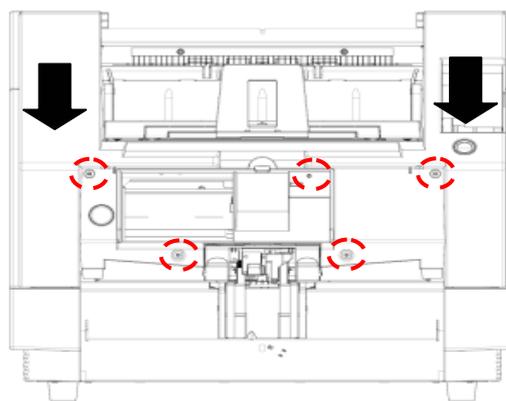


- (3) Push the Front cover horizontally all the way until it hits the back.

Note: Raising the front of the Stacker a bit makes you install the Front Cover smoothly.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 134/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	134/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

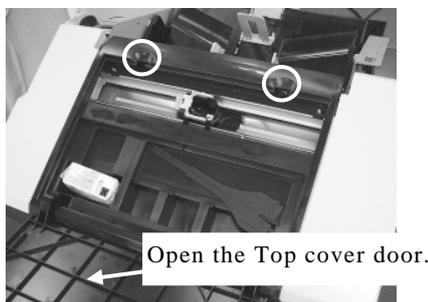
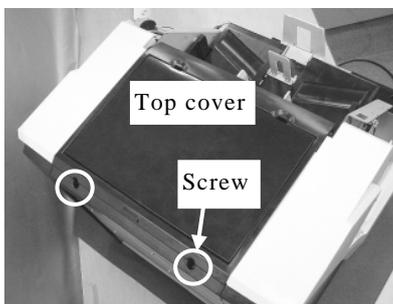
- Push the Front cover downward and tighten five (5) screws (circles in the photo on the right).
- Be sure to install the same Panel PCA since it has inherent information in the scanner.



6.6.2 Top Cover

<Removal>

- (1) Remove two (2) screws at the back of the Top cover (circles in the photo on the lower left).
- (2) Open the Top cover.
- (3) Remove two (2) screws inside (circles in the photos on the lower right) and lift the Top cover to remove.



<Installation>

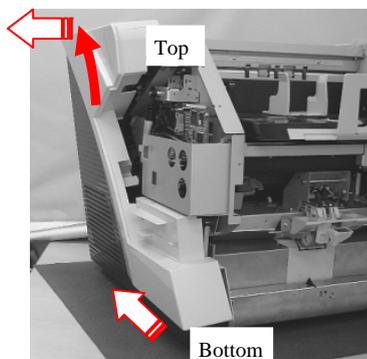
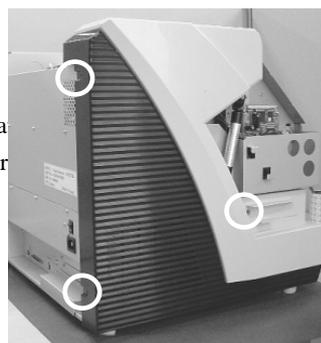
Follow the procedure above in reverse order.

6.6.3 Left side Cover

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Open the Upper Unit (ADF cover) and remove three (3) screws (circles in the photo on the right) from the left side cover.
- (4) Detach the top of the Left side cover, then the bottom.

Note: There are three (3) Hooks at the bottom of the Side cover that you must be careful not to break when removing the Side cover (Refer to the notes on <Installation>.)



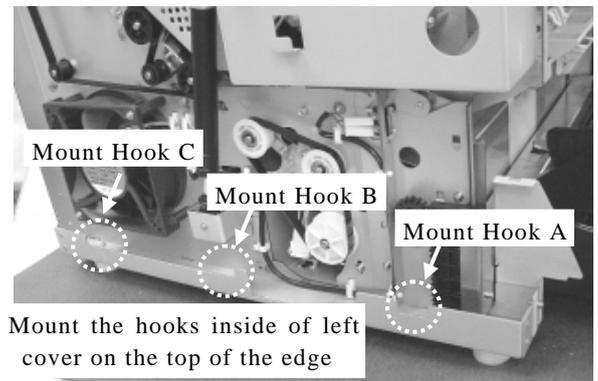
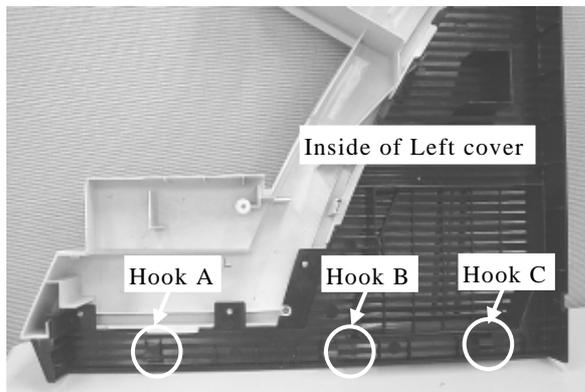
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 135/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	135/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

<Installation>

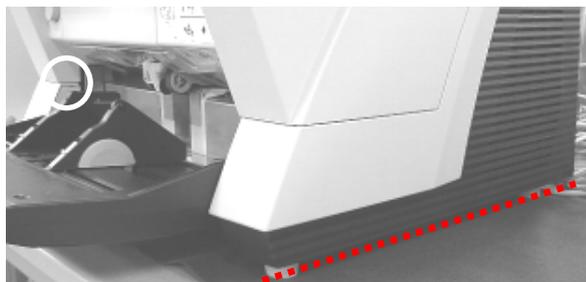
Follow the procedure above in reverse order.

Notes:

- Be sure that three (3) hooks inside of the Left side cover (solid circles in the photo lower left) are inserted on to the top of the bottom frame edge of the scanner (3, dotted circles in the photo lower right).



- Insert the hook (circle in the photo below) in the front of the Side cover into the COVER-PLATE hole.
- Trace the ridge line at the bottom of the Side cover (dotted line in the photo below) and confirm that three (3) hooks are firmly hooked.
- Bump the Side cover to the bottom direction and tighten three (3) screws (refer to step (3) in <Installation>). 04



6.6.4 Right side Cover

<Removal>

Referring to Section 6.6.3, remove the Right side cover.

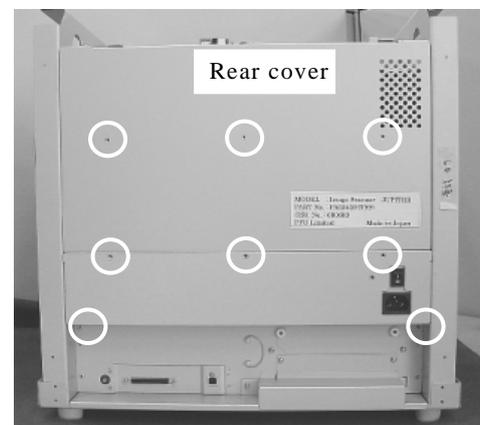
<Installation>

Referring to Section 6.6.3, install the Right side cover.

6.6.5 Rear Cover

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Referring to Section 6.6.3, remove the Left Side Cover.
- (4) Referring to Section 6.6.4, remove the Right Side Cover.
- (5) Remove six (8) screws (circles in the photo on the right) from the rear of the scanner, draw out the PCB unit a bit and remove the Rear Cover.



<Installation>

Follow the procedure above in reverse order.

Note: The manufacturing label is located on the Rear cover. Be sure to install the same cover when handling more than one scanner at a time. 09

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 136/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	136/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

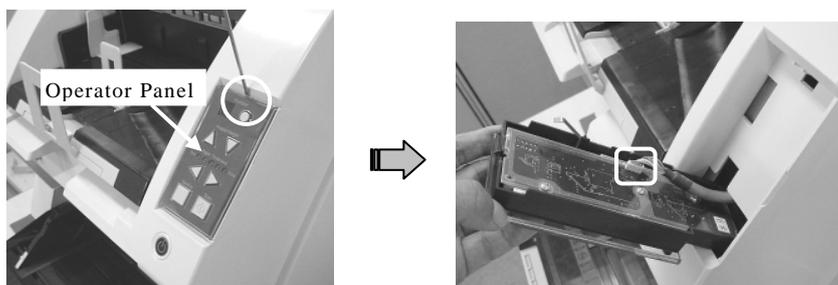
6.7 Replacing the Panel PCA

NOTICE

Refer to Section 8.3 for the part number of the replacement parts.

<Removal>

- (1) The EEPROM is installed on the Panel PCA. Before replacing the Panel PCA, be sure to save the EEPROM memory into the flash memory on the Control PCA by referring to Section 7.2.
- (2) Insert a flat-blade screwdriver into the gap (circle in the photo lower left) on the upper area of the Operator Panel and lift the Operator Panel from the Front Cover.



- (3) Disconnect the (1) connector on the Operator Panel (square in the photo upper right) and remove the Operator Panel.
- (4) Remove three (3) screws on the Panel PCA and remove the Panel PCA.

<Installation>

Follow the procedure above in reverse order.

Referring to Section 7.1.8, retrieve the EEPROM data which has been saved in the flash memory to the Panel PCA.

6.8 Replacing the Brush 2

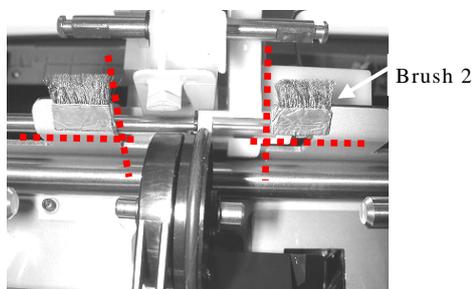
The Brush 2s are installed behind the Pick rollers:

NOTICE

Refer to Section 8.50 for the part number of the replacement parts.

<Removal>

- (1) Referring to Sections 3.3.4 and 3.3.5, remove the Pick rollers and Separator rollers.
- (2) Peel off both Brush 2s from the frame protrusions.
- (3) Clean off any excess adhesive residue from the frame.



<Installation>

- (1) Remove the adhesive protective backing.
- (2) Place each Brush 2 by aligning the foil edge with the plate edge of the frame (dotted line in the photo above).

Note: Clean and remove grease with alcohol on the adhered surface.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	137/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.9 Replacing the Brush 1

The Brush 1s are installed in the following parts:

1. Separator roller
2. Brake roller

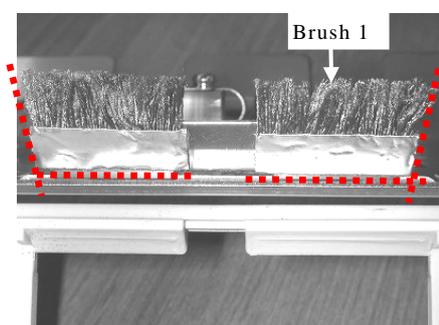
NOTICE

Refer to Section 8.49 for the part number of the replacement parts.

6.9.1 Separator Roller

<Removal>

- (1) Referring to Section 3.3.5, remove the Separator rollers.
- (2) Remove the Brush 1 on the Separator rollers.
- (3) Remove all stickum remaining on the frame.



<Installation>

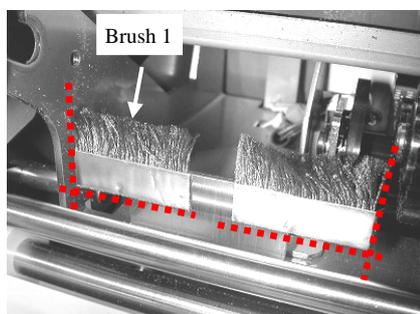
Paste the Brush 1 by aligning it with the plate edge of the Separator roller (dotted line in the photo above).

Note: Clean and remove grease with alcohol on the adhered surface.

6.9.2 Brake Roller

<Removal>

- (1) Referring to Section 3.3.6, remove the Brake rollers.
- (2) Remove the Brush 1 on the Brake rollers.
- (3) Remove all stickum remaining on the frame.



<Installation>

Paste the Brush 1 by aligning it with the plate edge of the Brake roller (dotted line in the photo above).

Note: Clean and remove grease with alcohol on the adhered surface.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				PFU LIMITED
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.10 Replacing the Power Supply and Fan ASSY

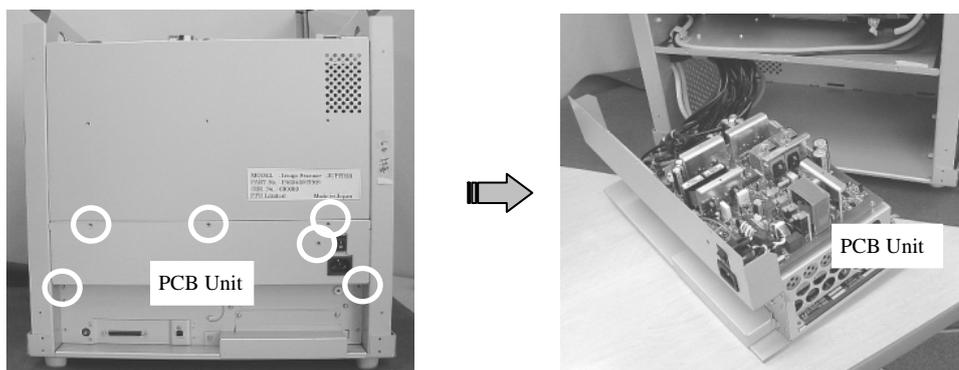
6.10.1 How to remove/install the Power Supply

NOTICE

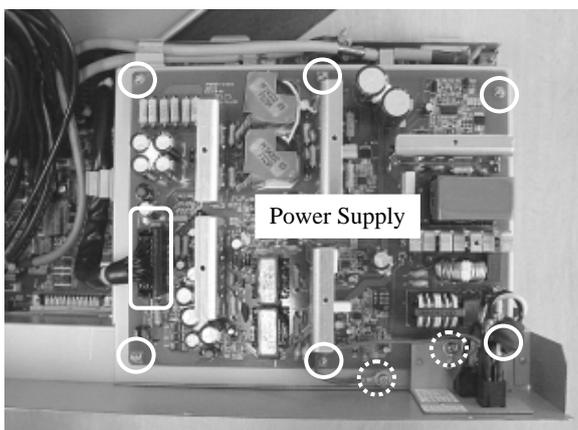
- The Power supply is located at the rear side of the Base unit.
- Refer to Section 8.4 for the part number of the replacement parts.

<Removal>

(1) Remove six (6) screws (circles in the photo below) of the PCB Unit and draw out the PCB Unit.



(2) Disconnect the (1) connector (square in the photo below) from the Power Supply. Remove six (6) screws (solid circles in the photo below) of the Power Supply and two (2) screws (dotted circles in the photo below) of the FG Cable, then remove the Power Supply.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	139/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

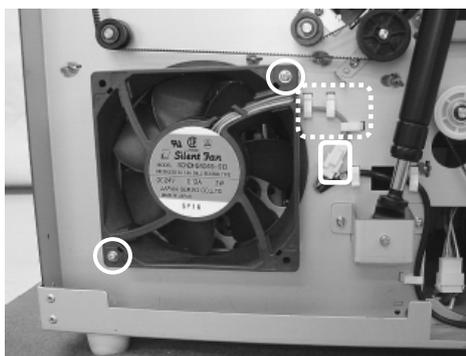
6.10.2 How to remove/install the Fan ASSY

NOTICE

- Fan ASSY is located at the back, left side of the Base unit.
- Refer to Section 8.5 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Referring to Section 6.6.3, remove the Left side cover.
- (3) Disconnect the (1) relay connector (solid square in the photo below) and remove three (3) Cable clamps (dotted square in the photo below). Remove two (2) screws (circles in the photo below) from the Fan ASSY and remove the Fan ASSY.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	140/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

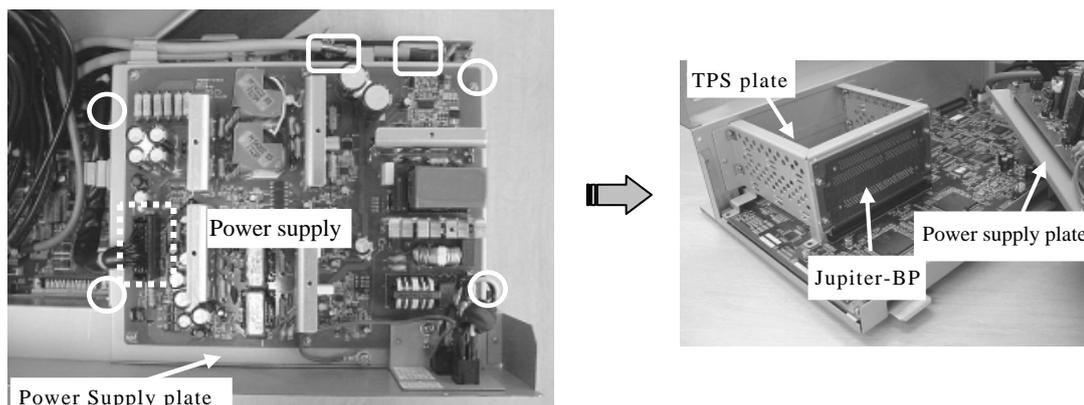
6.11 Replacing the Back Panel PCA

NOTICE

- Back Panel PCA is located at the rear side of the Base unit.
- Remove the optional board if installed.
- Refer to Section 8.48 for the part number of the replacement parts.

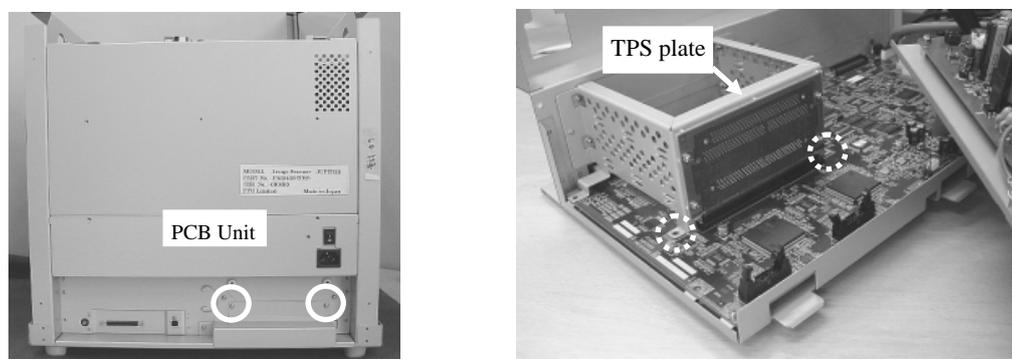
<Removal>

- (1) Referring to step (1) of Section 6.10.1, pull out the PCB Unit.
- (2) Disconnect the (1) connector on the Power Supply (dotted square in the photo below)
- (3) Disconnect two (2) connectors of the CCD cable (solid squares in the photo lower left) behind the Power Supply plate.
- (4) Remove four (4) screws (circles in the photo lower left), and remove the Power Supply plate.

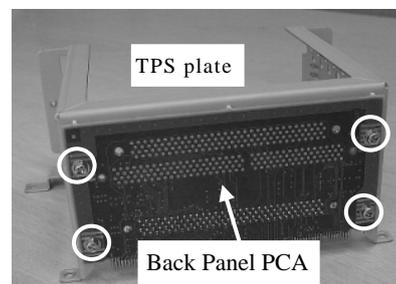


- (5) Remove two (2) screws (solid circles in the photo lower left) of the PCB Unit and (2) screws (dotted circles in the photo lower right) of the TPS plate, then remove the TPS plate.

Note: You can skip step (5) and go to step (6), but it is easier to remove the Back Panel PCA after removing the TPS plate.



- (6) Remove four (4) screws (circles in the photo on the right) from the Back Panel PCA to remove.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	141/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.12 Replacing the Control PCA

NOTICE

- Control PCA is located at the rear side of the Base unit.
- Refer to Section 8.1 for the part number of the replacement parts.
- If the RUBBER-ROLLER-K or FEED-ROLLER-K is installed, the firmware versions installed in the Control PCA must satisfy those in the table below.

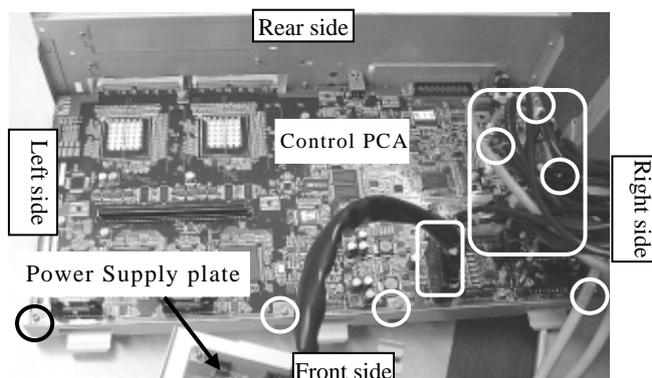
Firmware type	Firmware version	Version (Maintenance mode #6)
SDC	0N00 or later	1400 or later
MDC	0K00 or later	1100 or later
PUC	0E00 or later	0500 or later

<Removal>

- (1) Referring to steps (1) ~ (5) of Section 6.11, remove the Power Supply plate and TPS plate.
- (2) Remove the (1) screw above the USB Interface and two (2) standoffs for the SCSI interface (circles in the photo below) behind the PCB Unit.



- (3) Disconnect sixteen (16) connectors (squares in the photo below) from the Control PCA. Then remove seven (7) screws (circles in the photo below) of the Control PCA, then remove the Control PCA.



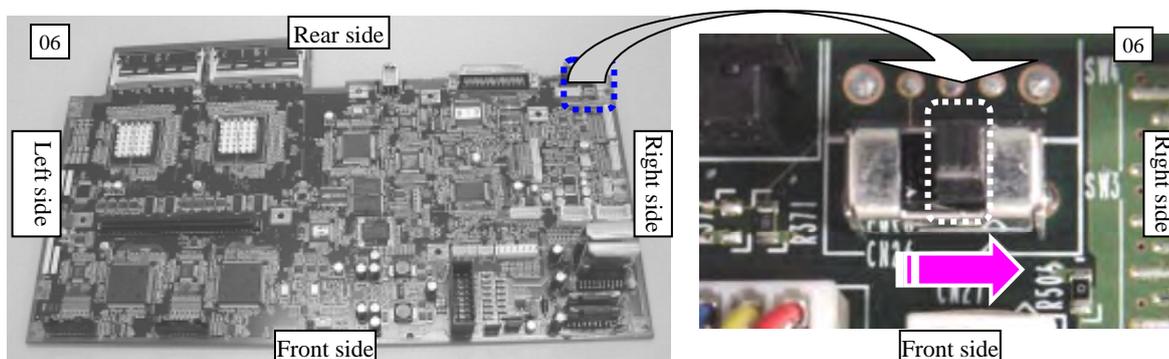
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	142/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

<Installation>

Follow the procedure above in reverse order.

- 16 connectors are all different sizes or have different numbers of pins.
- Be sure to connect all (16) connectors completely.
- To avoid the cables tangled, connect the connectors from the back of the scanner by looking from the rear of the scanner in order.
- Confirm that the SW3 (DIP switch) is set to the right when you see it from front side of the scanner (in the direction of the arrow). 06

Note: If the SW3 (DIP switch) is in opposite direction, the power button on the operator panel is disabled, with the result that power supply can be turned ON/OFF only by the power switch at the rear of the scanner. (Inserting and removing the outlet turns on and off the scanner with the main power switch left ON.) 06



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	143/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.13 Replacing the Gas Damper

The gas dampers are installed in the following areas:

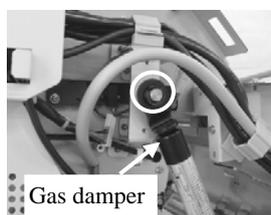
1. Right side of the scanner
2. Left side of the scanner

NOTICE

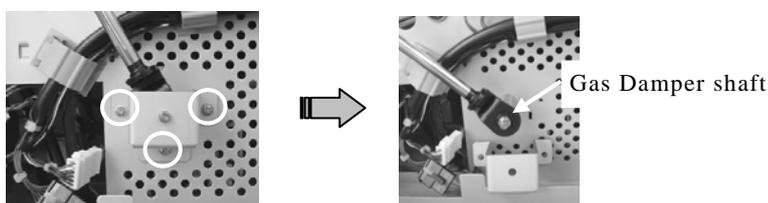
- Refer to Section 8.26 for the part number of the replacement parts.

6.13.1 Right side of the Scanner

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Referring to Section 6.6.3, remove the Left Side Cover.
- (4) Referring to Section 6.6.4, remove the Right Side Cover.
- (5) Referring to steps (6) ~ (7) in Section 6.15.1, open the Upper Unit until the Gas Damper is stretched all the way.
- (6) Remove the (1) e-ring (circle in the photo below) from the Upper unit. Lifting up the Upper unit, pull out the Gas Damper to remove. After removing the Gas Damper, let go of the Upper unit slowly.



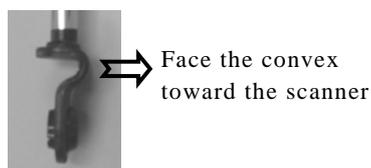
- (7) Remove three (3) screws (circles in the photo lower left) of the Gas Damper bracket at the Base unit, then pull the Gas Damper off of the Gas Damper shaft.



<Installation>

Follow the procedure above in reverse order.

Be sure that the convex side of the Gas Damper faces the scanner side.



6.13.2 Left side of the Scanner

<Removal>

Referring to Section 6.13.1, remove the left side of the Gas Damper.

<Installation>

Refer to Section 6.13.1.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 144/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	144/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

6.14 Replacing the Dielectric Brush

NOTICE

- The Dielectric Brush is located at the top of the Stacker (paper exit area).
- Refer to Section 8.27 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.



- (2) Remove two (2) screws (circles in the photo above) that secure the Dielectric Brush, then remove the Dielectric Brush.

<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	145/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.15 Replacing Parts in the Base unit

Base unit includes the Brake Torque Unit, CCD Unit, Lamp ASSY, Lower transport unit, etc.

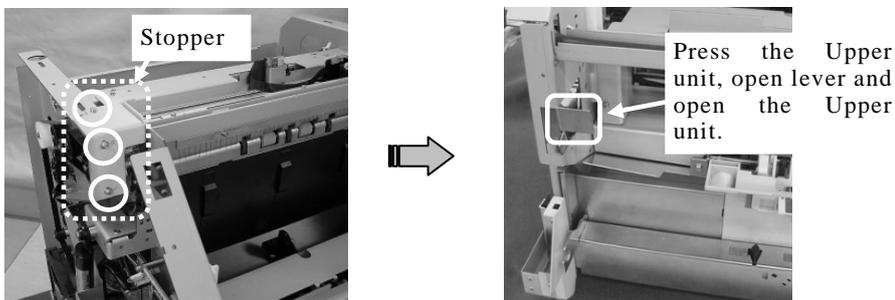
6.15.1 How to remove/install the Brake Torque Unit

NOTICE

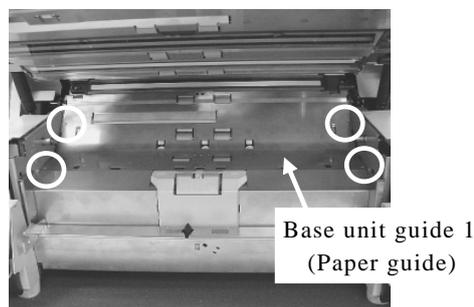
Refer to Section 8.28 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.5.1, remove the Hopper Unit.
- (2) Referring to Section 6.6.1, remove the Front Cover.
- (3) Referring to Section 6.6.2, remove the Top cover.
- (4) Referring to Section 6.6.3, remove the Left Side Cover.
- (5) Referring to Section 6.6.4, remove the Right Side Cover.
- (6) Remove three (3) screws (circle in the photo below) that secure the stopper at upper left side of the Base unit, then remove the stopper.
- (7) Open the Upper unit until the Gas Damper is stretched all the way out.



- (8) Remove four (4) screws (circles below) that secure the Base unit guide 1 (paper guide) and remove the Base unit guide 1 (paper guide).



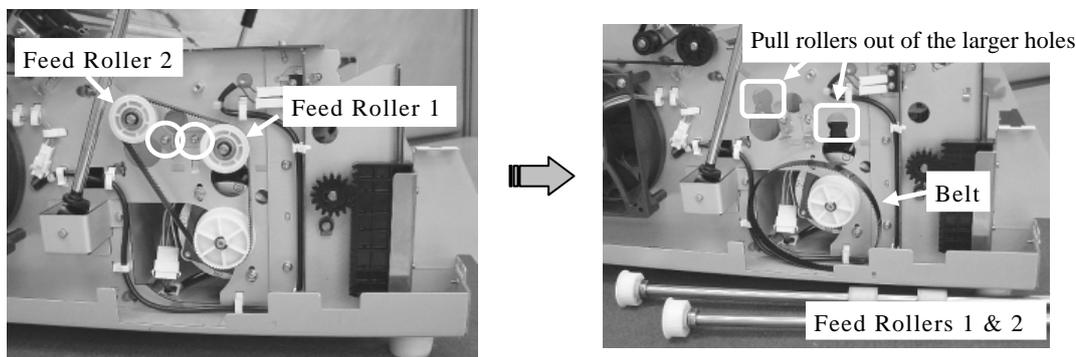
- (9) Loosen (1 each) of the feed roller shaft bearing holders screw (circles below) of Feed roller 1 and Feed roller 2 at the left side of the Base unit until the tip of the screws do not stick out of the inside face of the frame, then release the bearing fixation of the plate spring.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	146/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(10) Pull Feed rollers 1 and 2 out of the larger holes at the left side of the Base unit in oblique direction.

Notes:

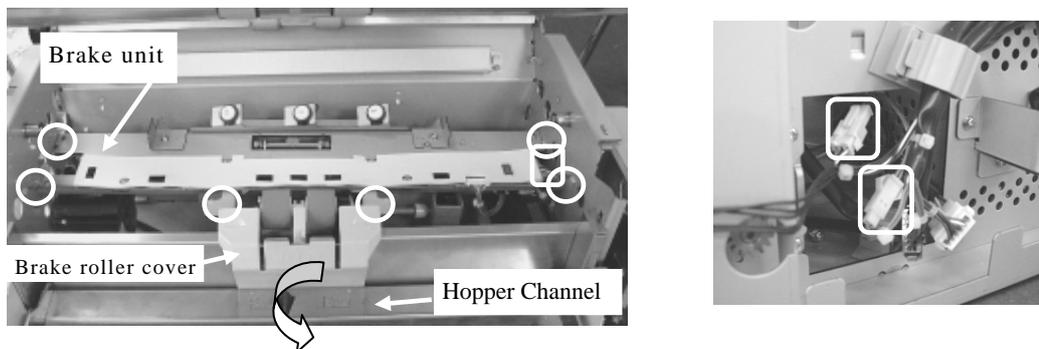
- The Feed roller 1 is located at the first from the front of the Base unit. 9 Feed rollers are called from 1 to 9 by counting from the front to back.
- Do not touch the fixing screw of the Feed motor.
- When removing the feed rollers, be careful not to damage the Sensor PCA or the Ultrasonic sensors.



(11) Disconnect a connector (square in the photo on the left below) from the Sensor PCA.

(12) Disconnect two (2) relay connectors (squares in the photo on the right below) at the right side of the Base unit.

Note: The 2 relay connectors are white, one with 2 pins, the other with 3 pins.



04

(13) Lower the Hopper Channel to its lowest position and open the Brake roller cover. ~~There are two screws under the Pad cover.~~

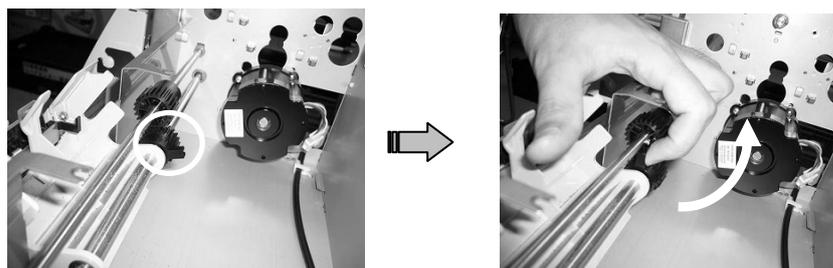
(14) Remove six (6) screws that secure the Brake Torque Unit (solid circle in the photo above left), lift the Brake Torque Unit upward and remove it.

<Installation>

Follow the procedure above in reverse order.

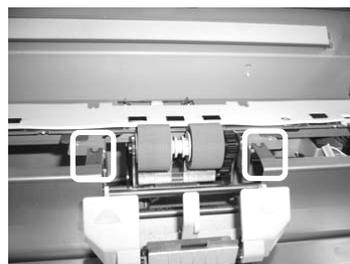
Notes:

- When you removed the Brake Torque Unit, the projection on the gear is facing bottom of the scanner (circle in the photo lower left). Raise the projection up until it faces up and vertical (photo lower right). You feel heavy when you are raising it because the torque limiter moves.
- After installing the Brake Torque Unit in the scanner, press the Brake roller and confirm that it moves up and down. (Otherwise the Brake roller cannot move.)

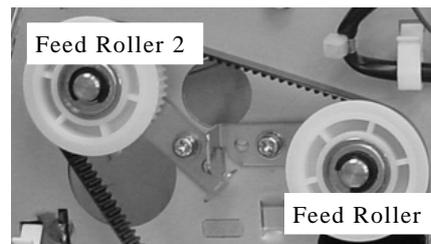


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 147/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	147/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

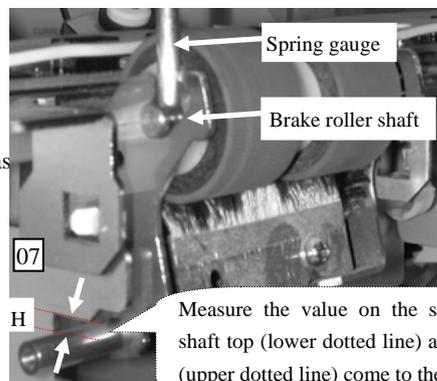
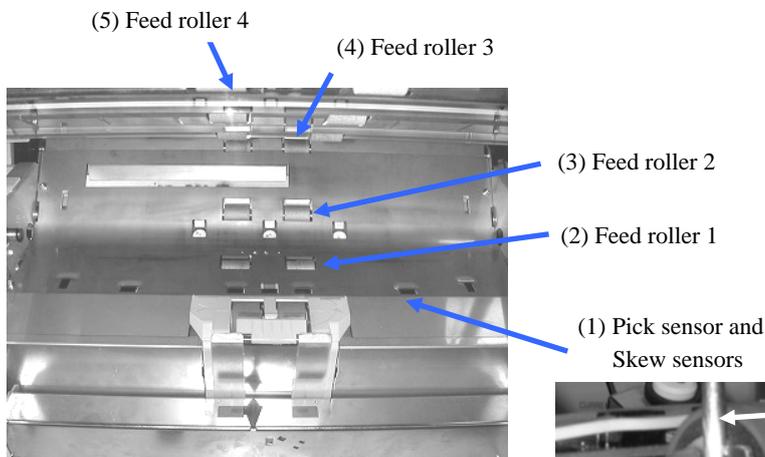
- Fit the groove of the Brake Torque Unit plate to the area on the frame (projection, circle in the photo lower left).
- Insert the Brake Torque Unit by sliding it from the back to front so that the Guide plates (2 areas, square in the photo on the lower right) is above it.



- Install Feed roller 1 at first, then install Feed roller 2 with the belt around the rollers during installation so that belt tension adjustment is unnecessary.
- Install the feed roller shaft bearing holders that secure Feed Rollers 1 and 2 as shown in the photo below.
 - * Insert the feed roller shaft bearing holders hole into the locator pins and install the screws.



- After installing the Brake Torque, confirm that the Brake roller moves up and down when the Hopper Channel moves.
- After replacing the Brake Torque unit, perform the "Ultrasonic Sensor adjustment" (Section 7.1.9).
- After installing the Base unit guide 1 (paper guide), confirm the followings:
 - (1) The Pick sensor and Skew sensors do not protrude from the Base unit guide 1.
 - (2) Protrusion amount of the Feed roller 1: $1.2 \pm 0.3\text{mm}$
 - (3) Protrusion amount of the Feed roller 2: $1.0 \pm 0.3\text{mm}$
 - (4) Protrusion amount of the Feed roller 3: $1.0 \pm 0.3\text{mm}$
 - (5) Protrusion amount of the Feed roller 4: $0.8 \pm 0.3\text{mm}$



Reference: You can measure the Brake roller pressure as shown in the photo below.

Measurement value: $5.4\text{N} \pm 0.2\text{N}$ ($550\text{gf} \pm 25\text{gf}$)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	148/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

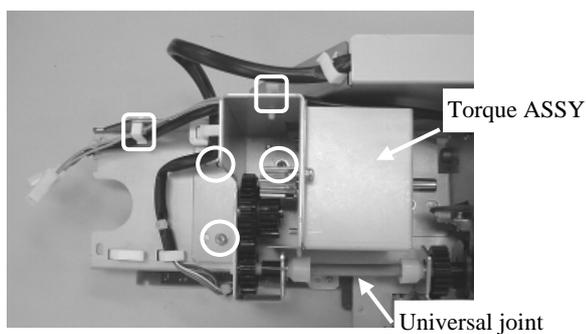
6.15.2 How to remove/install the Torque ASSY

NOTICE

- The Torque ASSY is located in the Brake Torque Unit.
- Refer to Section 8.31 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.15.1, remove the Brake Torque Unit.
- (2) Remove three (3) Torque ASSY screws (circle in the photo below).
- (3) Remove two (2) Torque ASSY cables from (2) clamps (squares in the photo below)
- (4) Remove the Torque ASSY.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	149/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

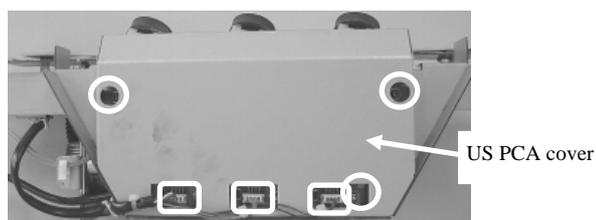
6.15.3 How to remove/install the US PCA

NOTICE

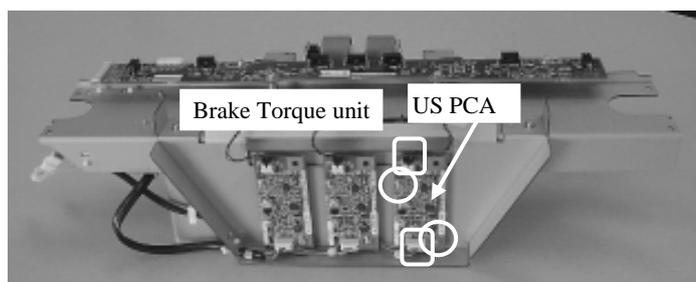
- The US PCA is located on the back side of the Brake Torque Unit.
- This is a printed circuit board where the US sensors are located.
- Refer to Section 8.30 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.15.1, remove the Brake Torque Unit.
- (2) Remove three (3) US PCA connectors (squares in the photo below). Remove three (3) screws (circles in the photo below) and remove the US PCA Cover.



- (3) Disconnect the (1) US PCA connector (square in the photo below). Then remove two (2) screws (circles in the photo below) and remove the US PCA.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	150/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

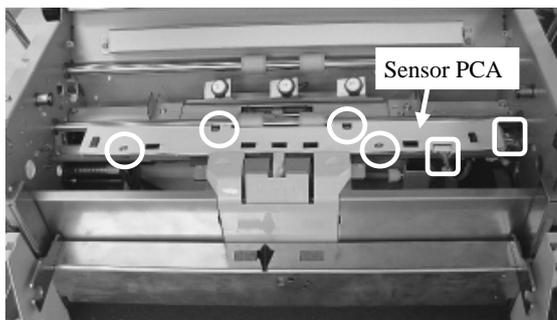
6.15.4 How to remove/install the Sensor PCA

NOTICE

- The Sensor PCA is located on the Brake Torque Unit.
- Refer to Section 8.29 for the part number of the replacement parts.

<Removal>

- (1) Referring to steps (1) ~ (7) in Section 6.15.1, remove the Base unit guide 1 (paper guide).
- (2) Remove the foam insulator sheet from the Sensor PCA.
- (3) Disconnect two (2) Sensor PCA connectors (squares in the photo below). Then remove four (4) screws (circles in the photo below) and remove the Sensor PCA.



<Installation>

Note: Use the same foam insulator sheet which was installed on the previous Sensor PCA.

Follow the procedure above in reverse order.

Be sure to insert seven (7) sensors on the Sensor PCA into the square holes on the foam insulator sheet.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	151/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

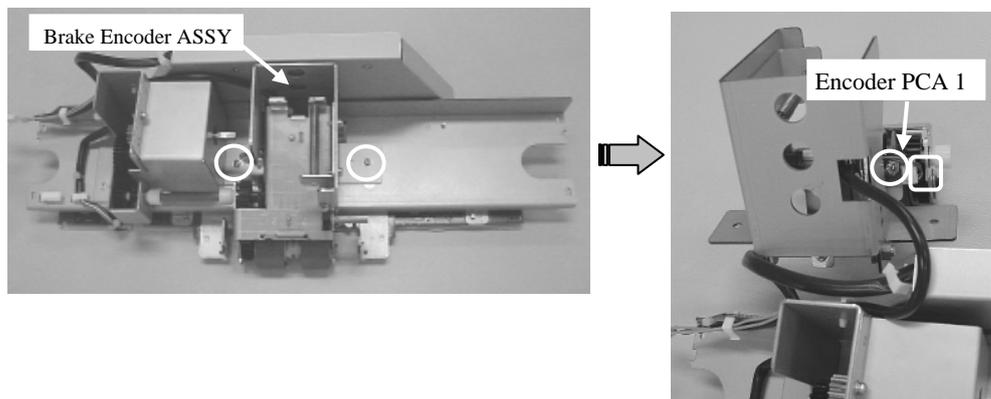
6.15.5 How to remove/install the Encoder PCA 1

NOTICE

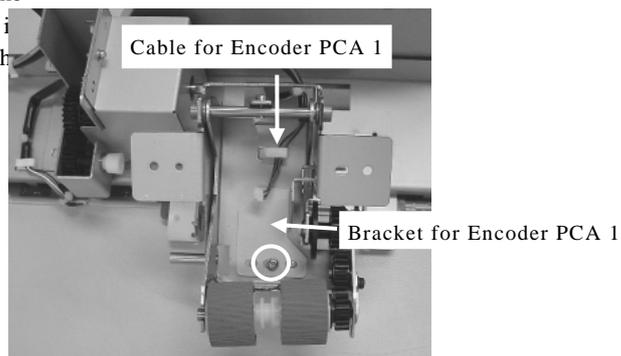
- The Encoder PCA 1 is located on the Brake Torque Unit.
- Refer to Section 8.32 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.15.1, remove the Brake Torque Unit.
- (2) Remove two (2) screws (circles in the photo lower left) that secure the Brake Encoder ASSY and disconnect the (1) connector (square in the photo lower right) of the Encoder PCA 1.



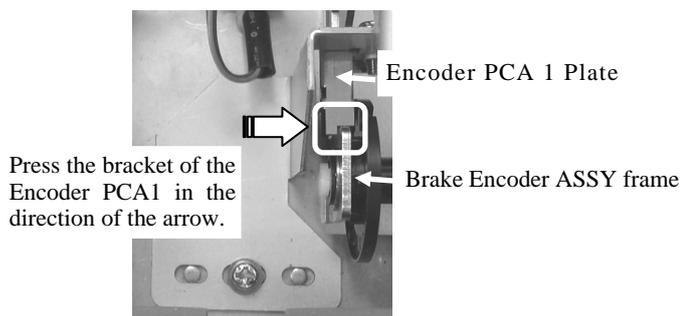
- (3) Loosen the (1) screw (circle in the photo below) of the Encoder PCA 1 bracket. Remove the (1) screw (circle in the photo upper right) of Encoder PCA 1, and remove the Encoder PCA 1.



<Installation>

Follow the procedure below in reverse order.

Press the Encoder PCA 1 bracket in the direction of the arrow in the photo below until the Encoder PCA 1 plate hits the Brake Encoder ASSY frame (square in the photo).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	152/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

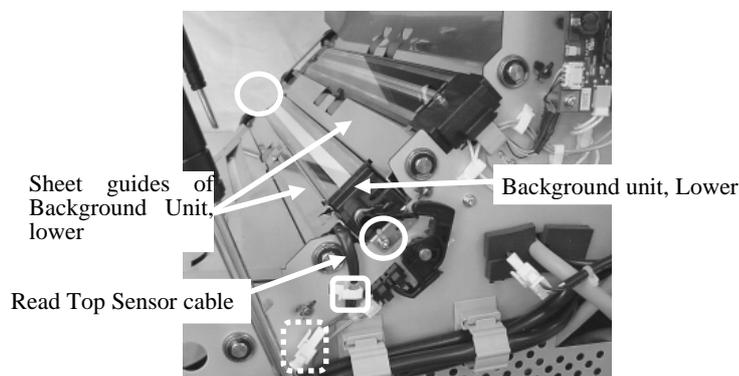
6.15.6 How to remove/install the Background Unit, Lower

NOTICE

- Refer to Section 8.39 for the part number of the replacement parts.
- The Background Unit Lower includes the sheet guides and the Read Top sensor.

<Removal>

- (1) Referring to steps (1) ~ (8) of Section 6.15.1, remove the Base unit guide 1 (paper guide).
- (2) Remove two (2) Background Unit Lower screws (circle in the photo below), and remove the Background Unit, Lower.

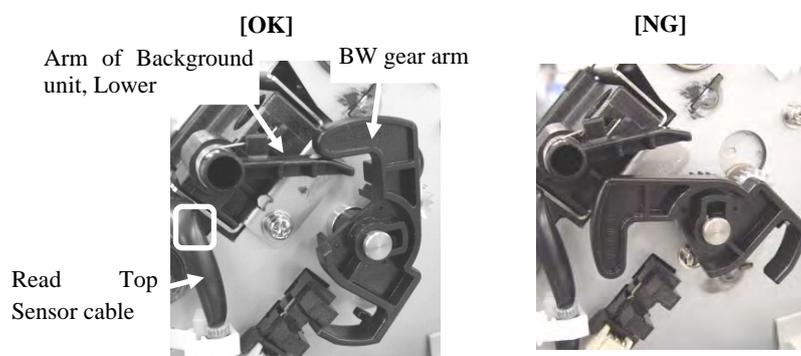


- (3) Remove the Read Top Sensor cable that is connected to the Background Unit Lower from the (1) clamp (solid square in the photo above) and disconnect the (1) relay connector (dotted square in the photo above).

<Installation>

Follow the procedure above in reverse order.

When installing the Background Unit Lower, make sure the BW gear arm is positioned as shown in the photo lower left.



Notes:

- Route the Read Top Sensor cable through the gap (square in the photo upper left) between the Base unit frame and the Background unit, Lower.
- Bump both the left and right edges of the Background Unit Lower to the Base unit frame, then fix with screws not to make a gap.
- After replacing the Background unit, Lower, perform the Offset adjustment (Section 7.1.4) and the White level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	153/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

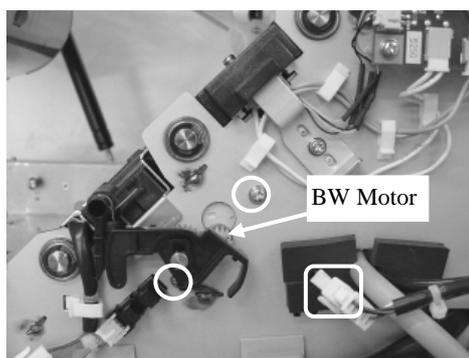
6.15.7 How to remove/install the BW Motor

NOTICE

- The BW Motor is located at the right of the Base unit.
- The BW Motor drives the background of the document front.
- Refer to Section 8.19 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Referring to Section 6.6.4, remove the Right Side Cover.
- (4) Referring to Section 6.6.5, remove the Rear Cover.
- (5) Disconnect the (1) BW Motor connector (square in the photo below). Remove two (2) screws (circles in the photo below) that secure the BW Motor and remove the motor through the back of the scanner.



<Installation>

Follow the procedure above in reverse order.

Install the BW gear arm by referring to <Installation> in Section 6.15.6.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	154/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.15.8 How to remove/install the Lamp ASSY and Glass

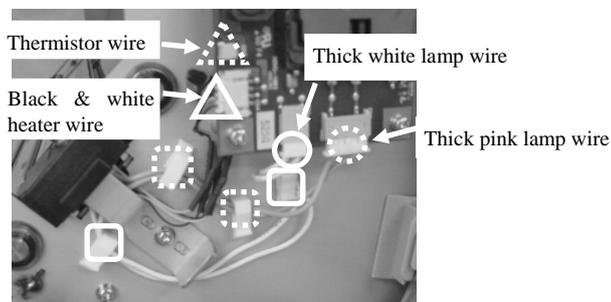
NOTICE

- Refer to Section 8.7 and 8.41 for the part numbers of the replacement parts.

<Removal>

[Replacing the Lamp ASSY]

- (1) Referring to Section 6.5.1, remove the Hopper Unit.
- (2) Referring to Section 6.6.1, remove the Front Cover.
- (3) Referring to Section 6.6.2, remove the Top Cover.
- (4) Referring to Section 6.6.3, remove the Left Side Cover.
- (5) Referring to Section 6.6.4, remove the Right Side Cover.
- (6) Remove three (3) screws that secure the stopper at upper left side of the Base Unit, then remove the stopper.
- (7) Disconnect the following connectors at right side of the Base unit.
 - Disconnect the (1) connector with the thick white lamp wire (solid circle in the photo below) from the Inverter and remove it from two (2) clamps (solid squares).
 - Disconnect the (1) connector with the thick pink lamp wire (dotted circle in the photo below) from the Inverter and remove it from two (2) clamps (dotted squares).
 - Remove the (1) connector with the black and white heater wire (solid triangle).
 - Remove the (1) connector with the thermistor wire (dotted triangle).



- (8) Remove the (1) screw (circle in the photo lower left) that secure the Lamp ASSY. Loosen the (1) screw (circle in the photo lower right) on the right side that secure the bracket and remove the Lamp ASSY.



- (9) Remove two (2) screws (circles in the photo below) that secure the Glass ASSY on to the Lamp ASSY and remove the Glass ASSY.



- (10) Remove the (1) screw that secures the bracket at the edge of the Lamp ASSY and remove the bracket.
- (11) Remove the thermistor wire.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	155/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

[Replacing the Glass]

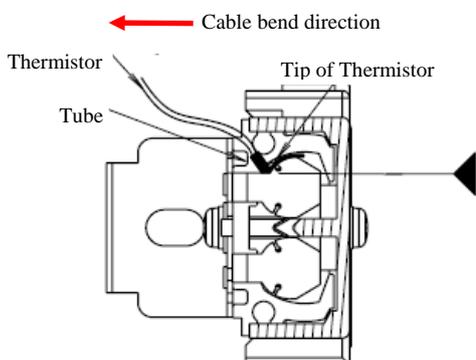
- (1) Open the Upper unit (ADF Cover).
- (2) Referring to step (9) in [Replacing the Lamp ASSY], remove two (2) screws of the glass ASSY on the Lamp ASSY, and remove the glass ASSY.

<Installation>

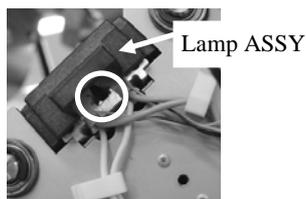
Follow the procedure above in reverse order.

Notes:

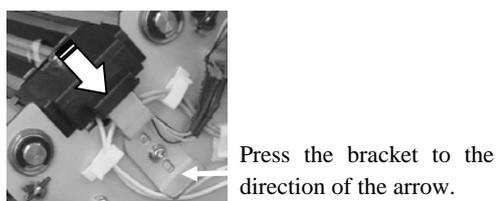
- Push in the tip of the Thermistor wire to the foot, strike the tube and bend the cable to the direction of the arrow.



- Once you have the Lamp ASSY in place on the Base Unit, insert the tip of the bracket on the right side into the gap of the Lamp ASSY (circle in the photo below). Make sure to route the wires properly so they are not damaged when inserting the bracket.



- Press both sides of the Lamp ASSY on to the frame and screw it in place leaving no gaps.



After replacing the Lamp ASSY, perform the White level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 156/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

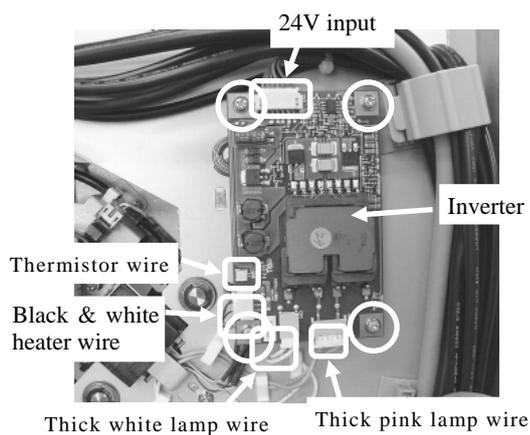
6.15.9 How to remove/install the Inverter

NOTICE

- The Inverter is located at the upper right of the Base unit.
- The Inverter lights the lamp.
- Refer to Section 8.8 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Referring to Section 6.6.4, remove the Right Side Cover.
- (4) Disconnect five (5) Inverter connectors (squares in the photo below). Then remove four (4) screws (circles in the photo below) and take out the Inverter.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	157/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.15.10 How to remove/install the Feed Motor 2 and Belt Feed 2

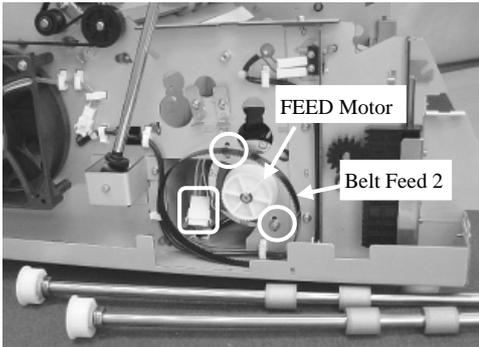
NOTICE

- The Feed Motor 2 and Belt Feed 2 are located at the lower left of the Base unit.
- They drive Rollers 1 and 2 on the lower transport unit.
- Refer to Sections 8.18 and 8.23 for the part numbers of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Referring to Section 6.6.3, remove the Left Side Cover.
- (3) Disconnect the (1) connector (square in the photo below) of the Feed Motor at lower left of the Base unit. Remove two (2) screws (circles in the photo below) and pull the Feed Motor out of the frame.

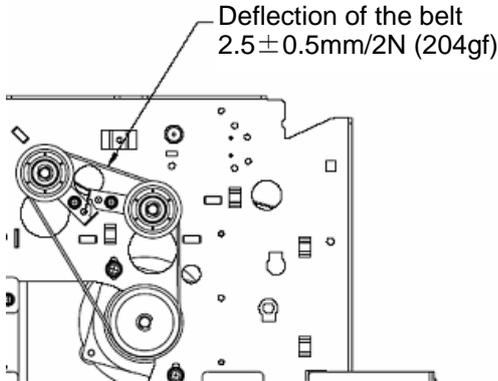
Alternate method: You can remove the Brake Torque Unit (Refer to Section 6.15.1) prior to removing the Feed motor.



<Installation>

Follow the procedure above in reverse order.

Adjust the Belt Feed 2 to the following tension.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	158/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

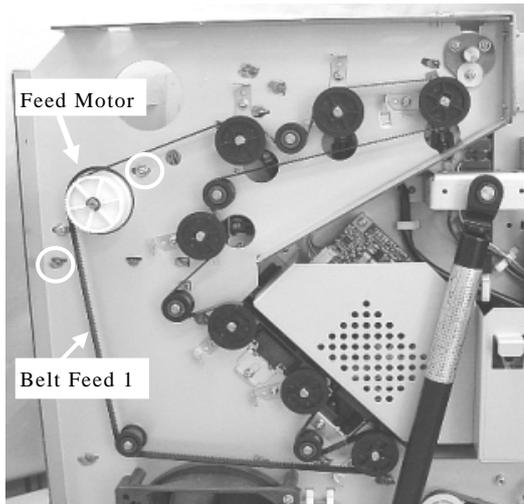
6.15.11 How to remove/install Feed Motor 1 and Belt Feed 1

NOTICE

- The Feed Motor 1 and Belt Feed 1 are located at the upper left of the Base unit.
- They drive Rollers 3 to 9.
- Refer to Sections 8.18 and 8.22 for the part numbers of the replacement parts.

<Removal>

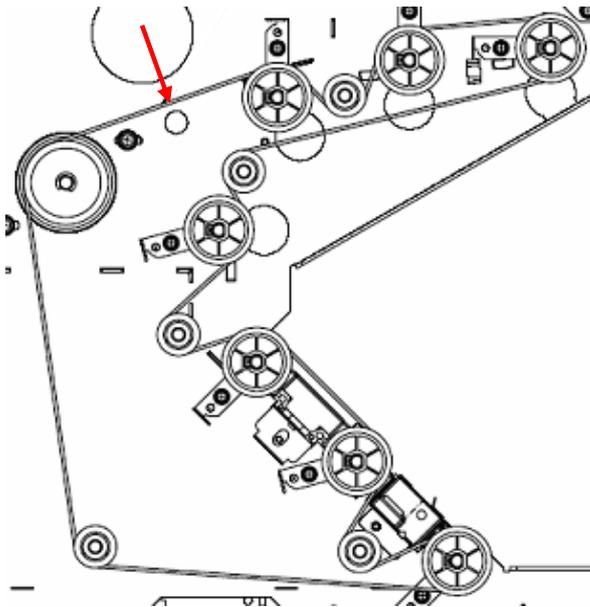
- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Referring to Section 6.6.3, remove the Left Side Cover.
- (3) Disconnect the (1) Feed Motor connector (inside of the Base unit frame) at upper left of the Base unit. Remove two (2) screws (circles in the photo below) and remove the Feed Motor.



<Installation>

Follow the procedure above in reverse order.
Adjust the Belt Feed 1 to the following tension.

Deflection of the Belt
 $4 \pm 0.5\text{mm}/2\text{N}$ (204gf)



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	159/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

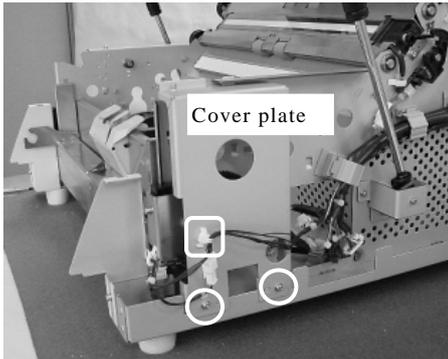
6.15.12 How to remove/install the Table Motor

NOTICE

- The Table Motor is located at the lower right of the Base unit.
- This moves the Hopper up and down.
- Refer to Section 8.20 for the part number of the replacement parts.

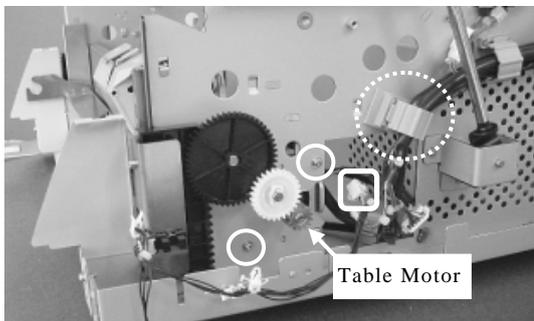
<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Referring to Section 6.6.4, remove the Right Side Cover.
- (3) Unlatch the hook of the cable holder arms (square in the photo below) and pull it out of the Cover plate at the right side of the Base unit.
- (4) Remove two (2) screws (circles in the photo below) and remove the Cover plate.



- (5) Disconnect the (1) Table Motor connector (square in the photo below).
- (6) Remove the cable from the cable clamp (dotted circle in the photo below).
- (7) Remove two (2) screws (circles in the photo below) and pull the Table Motor out of the hole in the Base unit frame.

Alternate method: You can remove the Brake Torque Unit (Refer to Section 6.15.1) first to remove the Table Motor.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	160/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.15.13 How to remove/install the CCD Unit

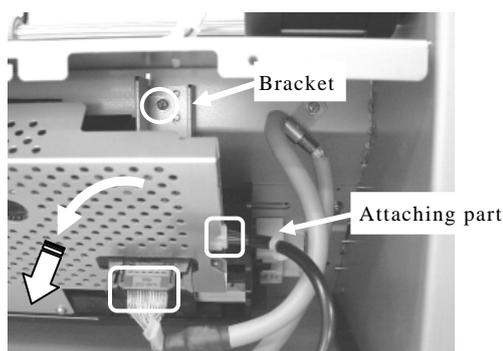
NOTICE

- This CCD unit scans the ADF backside image.
- Located at the rear of the Base unit.
- Do not hold the CCD board or mirrors directly with your hands. Be sure to hold the black frame. (Refer to Section 6.3.1)
- Refer to Section 8.6 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.5, remove the Rear Cover.
- (2) Disconnect two (2) CCD Unit connectors (squares in the photo below) at the rear side of the scanner.
- (3) Remove the (1) screw (circle in the photo) that secures the CCD Unit mounting bracket.
- (4) Lift the back of the CCD unit and pull the top of the bracket toward you to remove.

Note: When removing the bracket, hold the CCD Unit with your left hand so it does not fall.

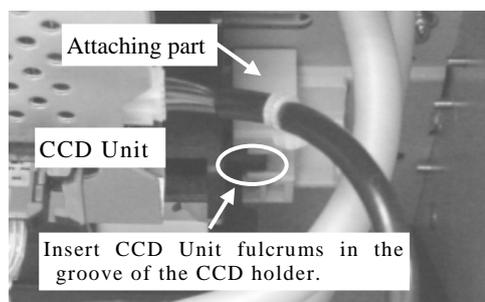


- (5) After removing the bracket, lay the CCD Unit down horizontally, then take it out towards you.

<Installation>

Follow the procedure above in reverse order.

- (1) Place the CCD unit on the level, and insert the fulcrums at both edges of the CCD Unit into the groove (oval in the photo below) of the attaching part on the CCD Unit. Press the CCD unit horizontally until it hits the wall.



- (2) Raise the CCD unit to the back, and confirm that the fulcrums of both sides of the CCD unit will not come off.
- (3) Insert the fulcrum at the right side of the CCD unit into the mounting bracket hole, and install the bracket on to the Base unit frame. Insert the tip of the bracket into the hole (oval in the photo below) on the Base unit frame, and insert the holes of the bracket into the locator pins (squares in the photo below) and screw the bracket into place.



Note: After replacing the CCD unit, perform the Offset adjustment (Section 7.1.4) and White level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 161/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.16 Replacing the Parts in the Upper unit

The Upper Unit includes the Separator Unit, Pick Roller Unit, CCD Unit, Lamp ASSY, etc.

NOTICE

- Screws and springs may accidentally drop inside of the unit. It is recommended to cover the unit with a sheet of paper or cloth before starting work.
- Be careful not to drop any parts on the lower transport unit while working on replacing parts of the upper transport unit.

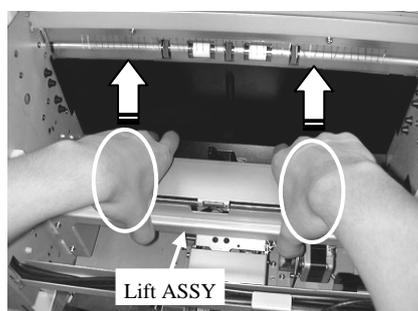
6.16.1 How to remove/install the Lift ASSY

NOTICE

- Refer to Section 8.46 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.5.3, remove the Stacker Unit.
- (2) Grabbing both sides of the Lift ASSY, lift upward to remove.

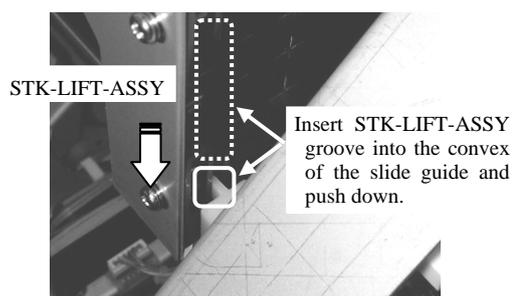


<Installation>

- (1) Fit the groove (dotted square in the photo lower left) of both edges of the Lift ASSY and convex (solid square in the photo lower left) of the slide guide on the scanner, and push the Lift ASSY horizontally downward.

Notes - Make sure that the Lift ASSY is level.

- Lower the Lift ASSY all the way down, and confirm that 2 legs (circles in the photo lower right) of both edges of the Lift ASSY bump the ADFREV channel.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	162/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

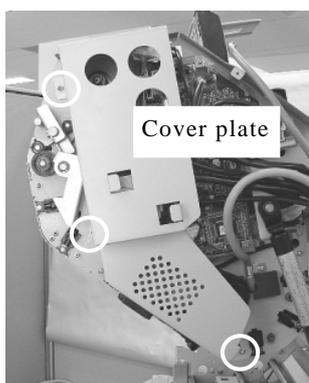
6.16.2 How to remove/install Table Motor

NOTICE

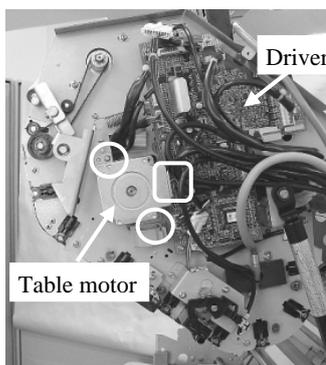
- Located at the right side of the Upper unit
- This motor moves the Stacker up and down.
- Refer to Section 8.20 for the replacement part.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Open the Upper unit, remove three (3) screws (circle below) that secure the Cover plate at the right side of the Upper unit and remove the Cover Plate.



- (3) Disconnect the (1) Table Motor connector (square below) from the motor.
- (4) Remove two (2) screws (circle below) and remove the Table Motor.
- (5) Take the Table motor out of the Upper unit frame to remove.



<Installation>

Follow the procedure above in reverse order.

Note: When installing the Table Motor, remove the cable attached to the new Table Motor, then place the hook on the motor into the opening in the frame and slide away from the Driver PCA into place. 05

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	163/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

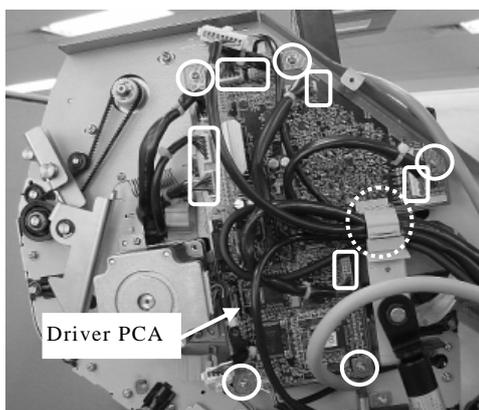
6.16.3 How to remove/install the Driver PCA

NOTICE

- The Driver PCA is located at the right side of the Upper unit.
- Refer to Section 8.2 for the part number of the replacement parts.

<Removal>

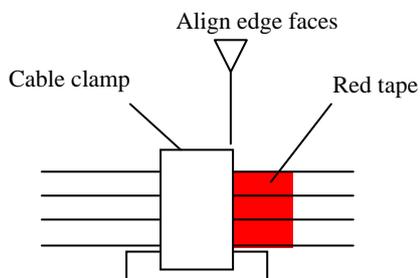
- (1) Referring to steps (1) to (2) of Section 6.16.2, remove the Cover plate at right side of the Upper unit.
- (2) Disconnect eleven (11) Driver PCA connectors (solid squares in the photo below).
- (3) Remove the harnesses from the cable clamp (dotted circle in the photo below).
- (4) Remove five (5) screws that secure the Driver PCA (circles in the photo below) and remove the Driver PCA.



<Removal>

Follow the procedure above in reverse order.

- All (11) connectors are different size and have different number of the pins.
- Be sure to insert all (11) connectors completely.
- To avoid the cable connectors coming off halfway, align the edge face of the cable clamp and that of the red tape before clamping.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	164/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

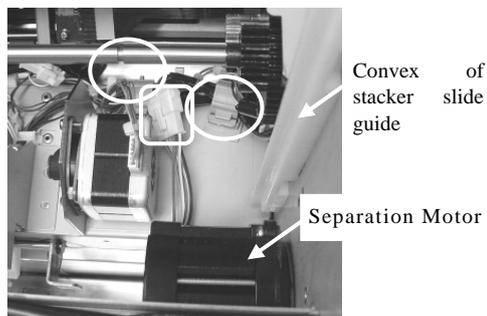
6.16.4 How to remove/install the Separation Motor and Belt Separation

NOTICE

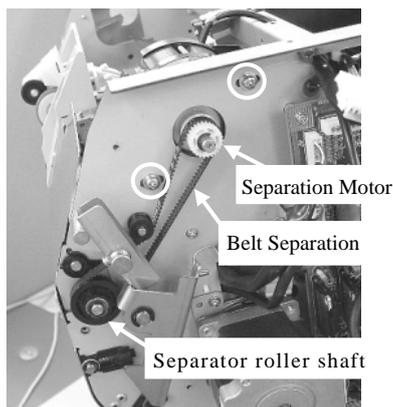
- The Separation Motor and Belt Separation are located at right side of the Upper unit.
- They are Separator roller's motor and belt.
- Refer to Sections 8.21 and 8.24 for the part numbers of the replacement parts.

<Removal>

- (1) Referring to steps (1) and (2) of Section 6.16.1, remove the Lift ASSY.
- (2) Disconnect the (1) relay connector (square in the photo below) of the Separation Motor.

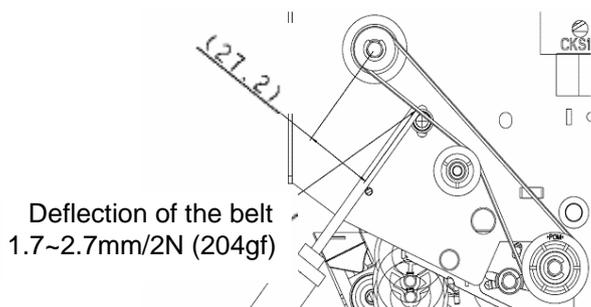


- (3) Referring to steps (1) and (2) in Section 6.16.2, remove the Cover plate at right side of the Upper unit.
- (4) Remove two (2) screws (circles in the photo below) of the Separation Motor and slide the Separation Motor towards the inside of the upper unit frame and remove.



<Installation>

Follow the procedure above in reverse order.
Adjust the Belt Separation to the following tension.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 165/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.16.5 How to remove/install Separator Unit

NOTICE

- Refer to Section 8.33 for the part number of the replacement parts.

<Removal>

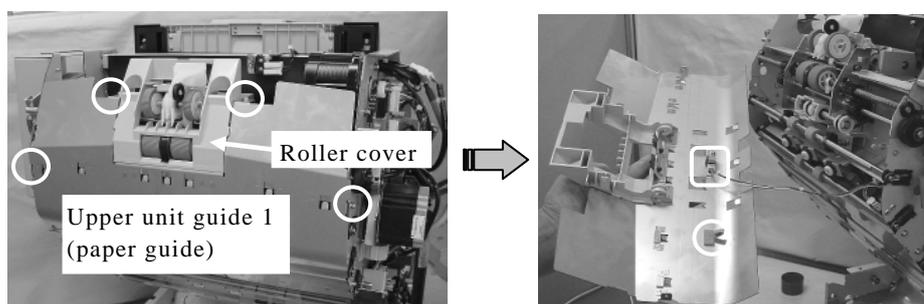
- (1) Referring to steps (1) to (7) in Section 6.15.1, open the Upper unit until the Gas Damper stretched all the way.
- (2) Referring to steps (1) and (2) in Section 6.16.2, remove the Cover plate at right side of the Upper unit.

In the same way, remove the Cover plate at left side of the Upper unit.

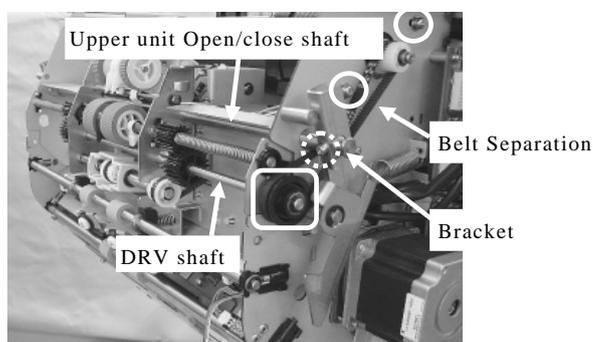
- (3) Remove four (4) screws (circles in the photo lower left) that secure the Upper unit guide 1 (paper guide),
- (4) Open the Roller cover and remove the Upper unit guide 1 (paper guide).

Note: Remove the Upper unit guide 1 slowly in order not to cut the Imprinter Top Sensor cable at the back of the Upper unit guide 1.

- (5) Remove the (1) Imprinter Top Sensor connector (square in the photo lower right) at the back of the Upper unit guide 1, and remove the cable from the (1) clamp (circle in the photo lower right).

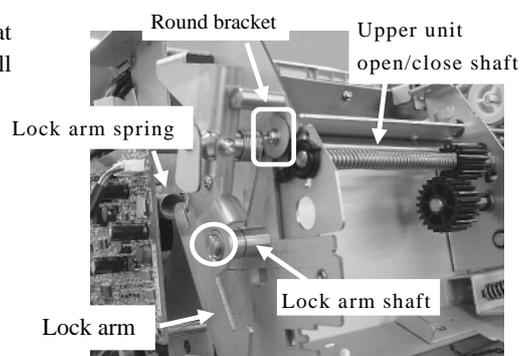


- (6) Loosen two (2) screws (solid circle in the photo below) that secure the Separation Motor, and remove the Belt Separation from a DRV shaft gear (square in the photo below).
- (7) Remove a screw (dotted circle in the photo below) of the bracket on the Upper unit open/close shaft at right side of the Upper unit.



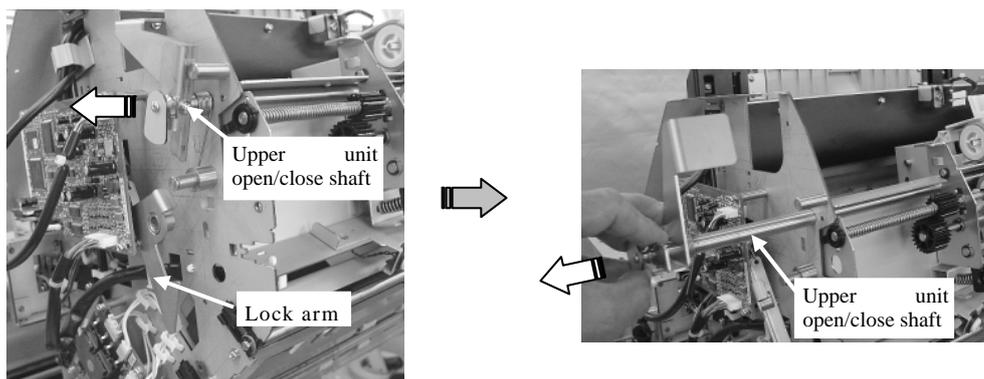
- (8) Remove a screw (square in the photo below) of the round bracket on the Upper unit open/close shaft at left side of the Upper unit, then remove the round bracket.
- (9) Remove the (1) e-ring (circle in the photo on the right) that secures the lock arm at the left side of the Upper unit, and pull the lock arm off of the lock arm shaft.

Note: The lock arm spring is easy to come off. Be sure to let go of the lock arm gently after pulling it off.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	166/327		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai					

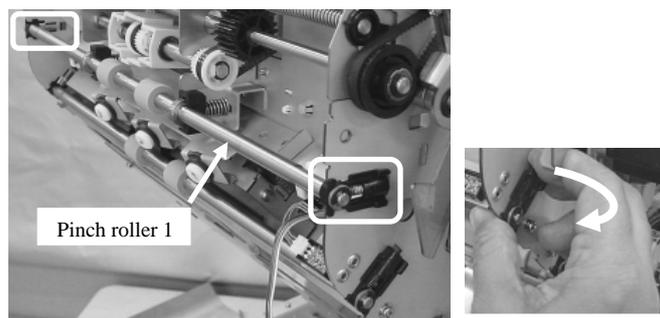
(10) Grabbing the bracket (screw removed in step (7)) of the Upper unit open/close shaft at the right side of the Upper unit, pull out the Upper unit open/close shaft toward left.



(11) Remove Pinch roller 1 by pulling out on the top of the black locking brackets (square in the photo on the rightmost) on each side and pulling down to remove.

Notes:

- Pinch roller 1 is the first Pinch roller from the front of the Upper unit (ADF Cover). 9 Pinch rollers are installed 1 to 9 stating from the front of the Upper unit (ADF Cover).
- Be careful! The Pinch roller bracket spring 1 is easy to lose.



(12) Disconnect three (3) connectors (circles in the photo on the right) of the Separator from the Driver PCA and remove them from the cable clamp (square in the photo on the right).



(13) Disconnect a JAM1 Sensor connector (solid square in the photo lower left).

(14) Remove four (4) Separator Unit screws (solid circle in the photo lower left) and pull the Separator Unit toward you to remove.

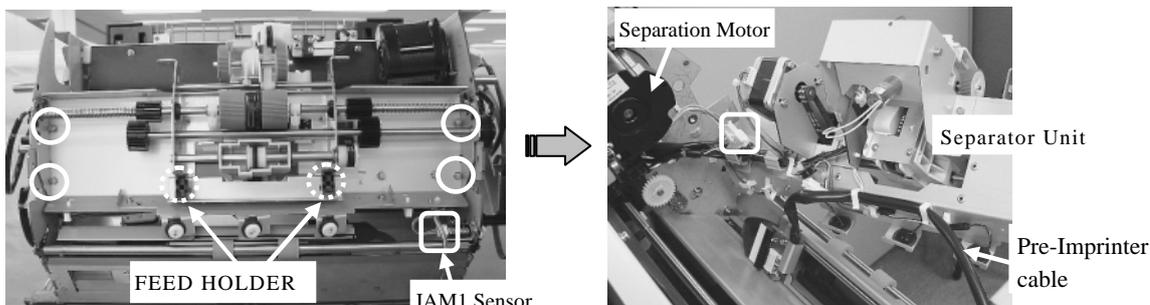
(15) Disconnect the (1) Separation Motor connector (solid square in the photo lower right) at the back of the Separator Unit.

(16) Remove the Pre-Imprinter cable from three (3) clamps (dotted squares in the photo lower right).

(17) Pull three (3) Separator Unit cables (removed in step (12)) out of the hole at right side of the Upper unit.

Notes: - The Separator Unit is easy to drop off. Be sure to grab it tightly.

- Be careful! Two (2) FEED HOLDERS (dotted circles in the photo below) are easy to drop off. Be sure not to touch it hard.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 167/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	167/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

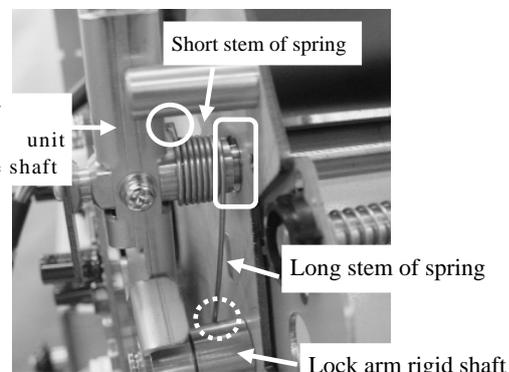
<Installation>

Follow the procedure above in reverse order.

Notes:

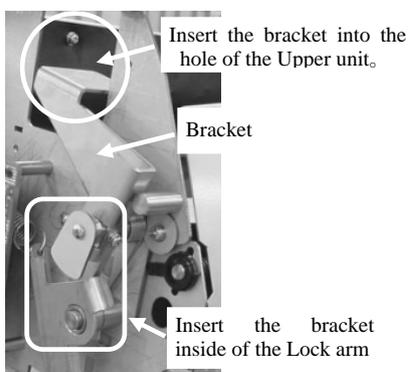
- When placing the Separator Unit, make sure to route the 3 cables disconnected from the Driver PCA in step (12) above through the hole in the right side of the Upper Unit frame.
- Follow the instruction below for the installation at the left side of the Upper unit.

1. Insert the Open/close shaft in to the scanner through the left side of the Upper Unit frame.
2. Insert the round bracket into the groove (square in the photo on the right) on the Upper unit open/close shaft.
3. Insert the short stem of the spring into the bracket groove (solid circle in the photo on the right) on the Upper unit open/close shaft. Insert the long stem inside of the stopper rigid shaft (dotted circle in the photo on the right).

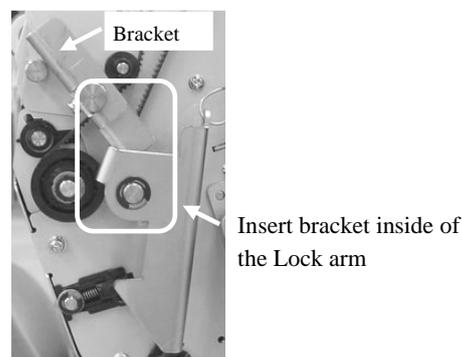


- Install the bracket of the Upper unit open/close shaft and the Lock arm as below.

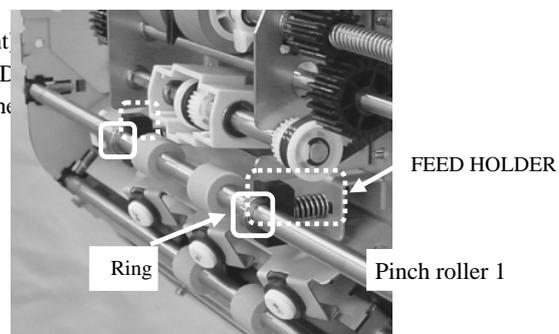
[Left side of Upper unit]



[Right side of Upper unit]



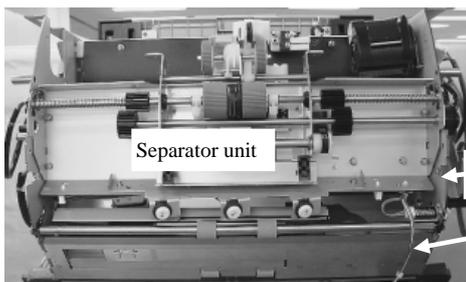
- Insert two (2) bearings (solid squares in the photo on the right) of the Pinch roller into the openings of two (2) FEED HOLDERS (dotted square in the photo on the right) of the Separator Unit.



- Be careful! Two (2) FEED HOLDERS (dotted squares in the photo below) are easy to drop off. Be sure not to touch it hard.
- Be careful! The bracket spring of the Pinch roller 1 is easy to lose. Insert it gently.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 168/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

- Lower the Imprinter Top Sensor cable straight to avoid being pinched by the Separator unit and the Upper unit frame.



Upper unit frame

Lower the Imprinter Top Sensor cable straight

- Connect the connector to the Imprinter Top sensor cable at the back of the Upper unit guide 1 and secure the cable to the clamp. Without secured to the clamp, the cable may touch the roller and get damaged. [06]
- Insert the bottom of the Upper Unit guide 1 into the grooves (square in the photo on the right) of the Upper unit frame.
- Hit the left and right sides of the Upper unit guide 1 to the Upper unit frame and screw it without making a gap.
- After replacing the Separator Unit, perform the "Ultrasonic Sensor adjustment" (Section 7.1.9).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			169/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.16.6 How to remove/install the Pick Solenoid

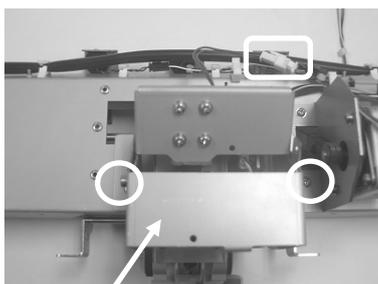
NOTICE

- The Pick Solenoid is located on the Separator Unit.
- Refer to Section 8.35 for the part number of the replacement parts.

<Removal>

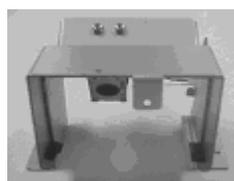
- (1) Referring to Section 6.16.5, remove the Separator Unit.
- (2) Disconnect the (1) Pick Solenoid connector (square in the photo below).
- (3) Remove two (2) screws that secure the Pick solenoid (circles in the photo below) and the (1) PIC spring, then remove the solenoid side of the Pick Solenoid upward.

Note: Be careful not to lose the rubber grommet that is located on the plunger.



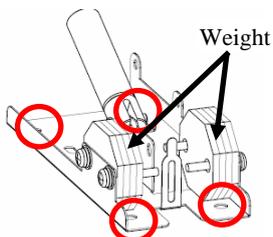
Pick solenoid

[Scanner side of the Pick solenoid]

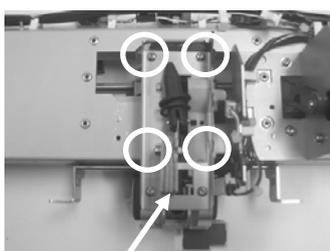


- (4) Remove four (4) screws (circles in the photo below) of the weight at the solenoid iron core side of the Pick solenoid.

[Iron core side of the Pick solenoid]



- (4) Remove four (4) screws (circles in the photo below) and remove the iron core side of the Pick solenoid.



Iron core side of Pick solenoid

<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	170/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

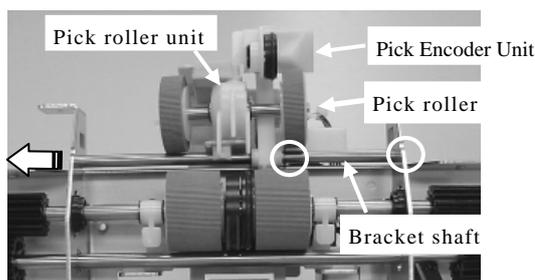
6.16.7 (Reference) How to remove/install Pick Roller Unit

NOTICE

- The replacement procedure for the Pick roller unit is described though it is not a maintenance part.
- The Pick roller unit is located in the Separator Unit.
- Refer to Section 8.34 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.16.1, remove the Lift ASSY.
- (2) Referring to step (3) of Section 6.16.5, remove the Upper unit guide 1.
- (3) Referring to step (2) of Section 6.16.6, remove the solenoid side of the Pick Solenoid.
- (4) Referring to step (3) of Section 6.16.10, take the Belt Pick out of the Pick roller shaft gear.
- (5) Remove the Pick roller on the right side, then remove two (2) small e-rings (circles in the photo below) that secure the bracket shaft on the Pick Encoder Unit. Slide the shaft to left and remove the Pick Encoder Unit. Let the Pick Encoder hand to the side by its wire harness.

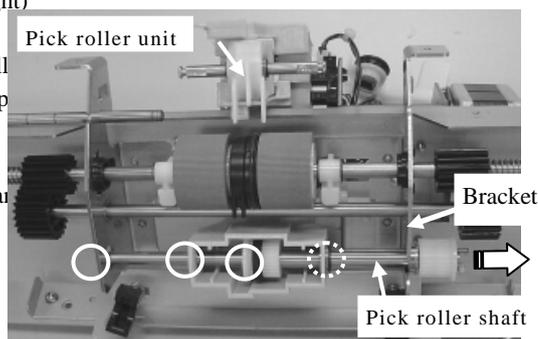


- (6) Remove four (4) e-rings (circles in the photo on the right) from the Pick roller shaft.
- (7) Slide the Pick roller shaft to the right and slant the Pick roller unit to remove it from the bracket. Move it in the up direction to remove it.

Notes:

- Be careful not to lose the e-rings (small: 3, large: 1) and the bearings (small:2, large:2) of the Pick roller shaft.
- Be careful not to lose the Pick Roller Shaft gear.

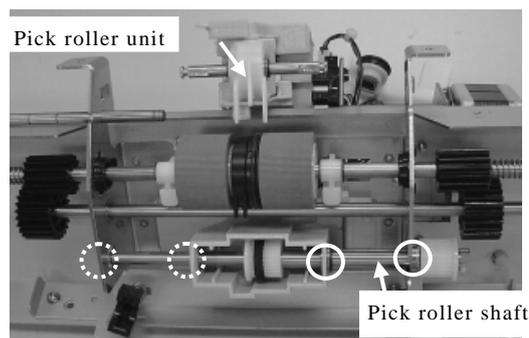
- (8) Lift the blue, plastic Pick Roller Unit to remove.



<Installation>

Follow the procedure above in reverse order.

Install two (2) small bearings in the position with dotted circles and two (2) larger bearing in the position of the solid circles. Install the large e-rings in the position of the dotted circle in the photo above right and three (3) e-rings in the positions of the solid circles.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 171/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

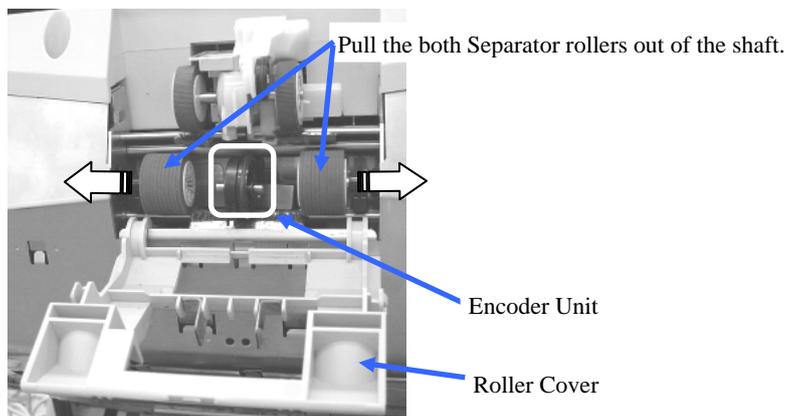
6.16.8 How to remove/install the Encoder PCA 1

NOTICE

- The Encoder PCA 1 is located in the Encoder unit between Separator rollers.
- Refer to Section 8.32 for the part number of the replacement parts.

<Removal>

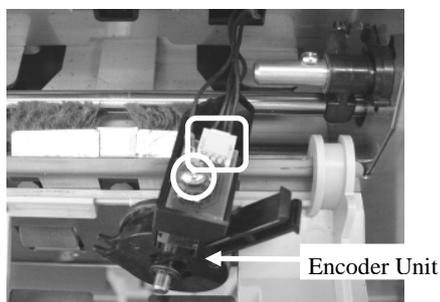
- (1) Open the Upper Unit (ADF Cover), then the Roller Cover.
- (2) Slide both the right and left Separator rollers together with the shafts outward until the shafts lock in position and remove the both Separator rollers.



- (3) Pull the Encoder Unit downward and pull it out of the Separator unit.

Note: Pull out the Encoder Unit slowly as to not damage the wiring harness.

- (4) Remove the (1) screw that secures the Encoder PCA 1 (circle in the photo below) in the Encoder Unit, remove the Encoder PCA 1, then disconnect the (1) connector (square in the photo below).



<Installation>

Follow the procedure above in reverse order.

Notes:

- Make sure to install the metal plate spring on to the Encoder PCA 1 together with the cable.
- Connect the Encoder PCA 1 prior to securing it in place with the screw.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	172/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

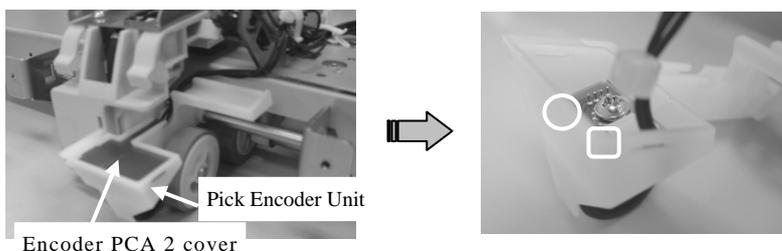
6.16.9 How to remove/install the Encoder PCA 2

NOTICE

- The Encoder PCA 2 is located in the Pick Encoder Unit of the Separator Unit.
- Refer to Section 8.37 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Remove the Encoder PCA 2 cover of the Pick Encoder Unit (photo lower left).
- (3) Remove the (1) screw that secures the Encoder PCA 2 (circle in the photo lower right), remove the Encoder PCA 2, then disconnect the (1) connector (square in the photo lower right).



<Installation>

Follow the procedure above in reverse order.

Notes:

- Make sure to install the metal plate spring on to the new Encoder PCA together with the cable.
- Connect the Encoder PCA 2 prior to securing it in place with the screw.
- Make sure to route the wiring harness under the Encoder PCA2 cover.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	173/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

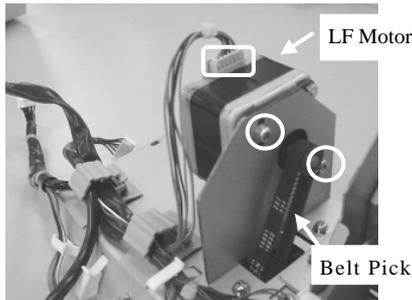
6.16.10 How to remove/install the LF Motor and Belt Pick

NOTICE

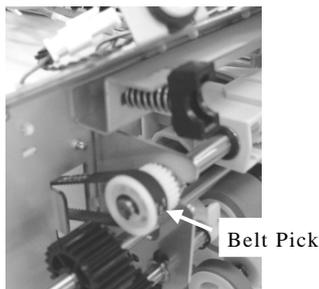
- The LF Motor and Belt Pick are located in the Separator Unit.
- They are the motor and belt of the Pick Roller.
- Refer to Sections 8.38 and 8.25 for the part numbers of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to step (3) of Section 6.16.5, remove the Upper unit guide 1.
- (3) Referring to step (2) of Section 6.16.6, remove the solenoid side of the Pick Solenoid.
- (4) Disconnect the (1) LF Motor connector (square in the photo below) from the motor.
- (5) Remove two (2) screws (circles in the photo below), and remove the LF motor.

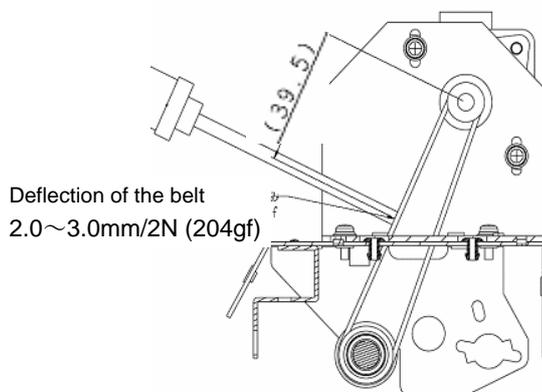


- (6) Remove the Belt Pick from the Pick roller shaft gear at the back of the Separator Unit.



<Installation>

Follow the procedure above in reverse order.
Adjust the Belt Pick to the following tension.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 174/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

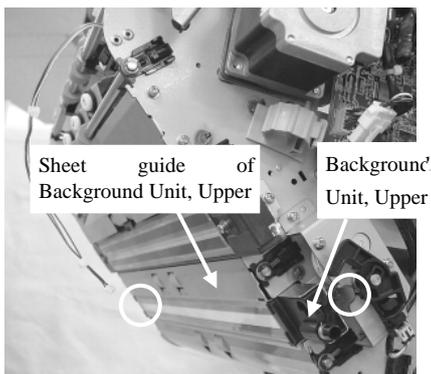
6.16.11 How to remove/install the Background Unit, Upper

NOTICE

- Refer to Section 8.40 for the part number of the replacement parts.
- The sheet guide is included in the Background Unit, Upper.

<Removal>

- (1) Referring to steps Section 6.6.1, remove the Front Cover.
- (2) Referring to steps (1) and (2) of Section 6.16.2, remove the Cover plate at the right side of the Upper unit.
Also, remove the Cover plate on the left side of the Upper unit.
- (3) Remove two (2) screws that secure the Background Unit Upper (circles in the photo below) and remove the Background Unit, Upper.



Note:

- The screws that secure the Background Unit are special "Guide Pin Screws".
- Be careful! The Background Unit, Upper is easy to drop off. Be sure to grab it hard.

<Installation>

Follow the procedure above in reverse order.

Referring to <Installation> in Section ~~6.16.6~~ 6.15.6, install the BW gear arm.

04

Note: After replacing the Background Unit, Upper, perform the White Level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	175/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

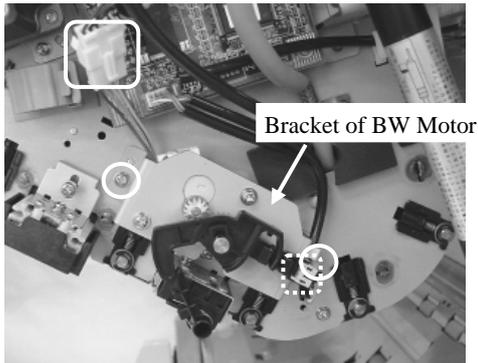
6.16.12 How to remove/install the BW Motor

NOTICE

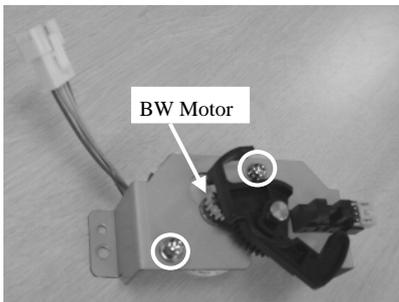
- The BW Motor is located at the right side of the Base unit.
- The BW Motor drives the background of the document back.
- Refer to Section 8.19 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.1, remove the Front Cover.
- (2) Referring to steps (1) and (2) of Section 6.16.2, remove the Cover plate at right side of the Upper unit.
- (3) Disconnect the (1) BW Motor relay connector (solid square in the photo below). Disconnect the (1) sensor cable connector (dotted square in the photo below) and remove it from the (1) cable clamp.
- (4) Remove two (2) screws (circle in the photo below) that secure the BW Motor bracket to the Upper Unit and remove the bracket.



- (5) Remove two (2) screws (circles in the photo below) that secure the BW Motor to the bracket and remove the BW Motor.



<Installation>

Follow the procedure above in reverse order.

Referring to <Installation> in Section 6.16.6, install the BW gear arm.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	176/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

6.16.13 How to remove/install the Lamp ASSY and Glass

NOTICE

- Refer to Sections 8.7 and 8.41 for the part numbers of the replacement parts.

<Removal>

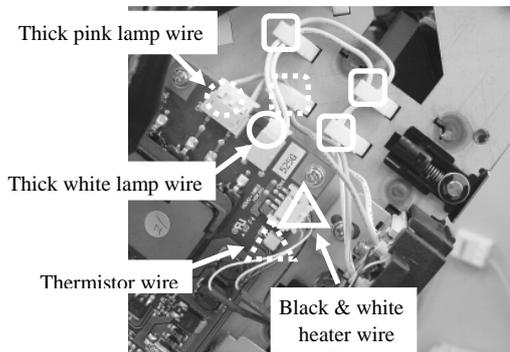
[Replacing the Lamp ASSY]

(1) Referring to steps (1) and (2) of Section 6.16.2, remove the Cover Plate at right side of the Upper unit.

Also remove the Cover plate on the left side of the Upper unit.

(2) Disconnect the following connectors at left side of the Base unit.

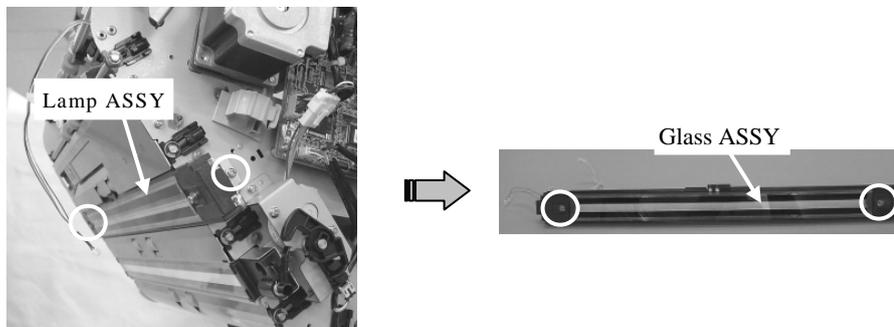
- Disconnect the (1) connector with the thick white lamp wire (solid circle in the photo below) from the Inverter and remove it from three (3) clamps (solid squares).
- Disconnect the (1) connector with the thick pink lamp wires (dotted circle in the photo below) from the Inverter and remove it from two (2) clamps (dotted squares).
- Remove the (1) connector with the black and white heater wire (solid triangle).
- Remove the (1) connector with the thermistor wire (dotted triangle).



(3) Remove two (2) screws (circle in the photo lower left) that secure the Lamp ASSY and remove the Lamp ASSY.

Notes:

- Be careful! The lamp ASSY is easy to drop off. Be sure to grab it hard.
- The Lamp ASSY screw is the special type "Guide pin screw".



(4) Remove two (2) lamp unit screws (circles in the photo upper right) on the Lamp ASSY and remove the Glass ASSY.

(5) Remove the (1) bracket screw at each side of the Lamp ASSY and remove the brackets.

(6) Remove the Thermistor wire.

[Replacing the Glass]

(1) Referring to Section 6.6.1, remove the Front Cover.

(2) Referring to step (3) of [Replacing the Lamp ASSY], remove two (2) screws that secure the Glass ASSY on the Lamp ASSY, then remove the Glass ASSY.

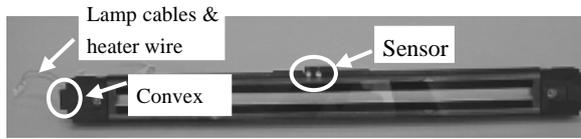
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 177/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

<Installation>

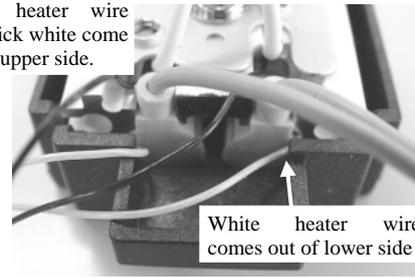
Follow the procedure above in reverse order.

Notes:

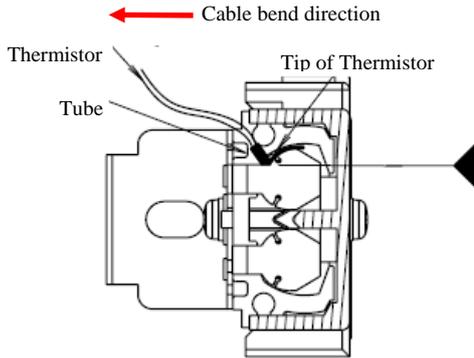
- Pay attention to the position of the lamp cables (thick white and thick pink) and the heater wire.



Black heater wire and thick white come out of upper side.



- Push in the tip of the Thermistor wire to the foot, strike the tube and bend the cable to the direction of the arrow.



- Press both sides of the Lamp ASSY on to the frame and screw it in place leaving no gaps.
- After replacing the Lamp ASSY, perform the White level adjustment (Section 7.1.5).

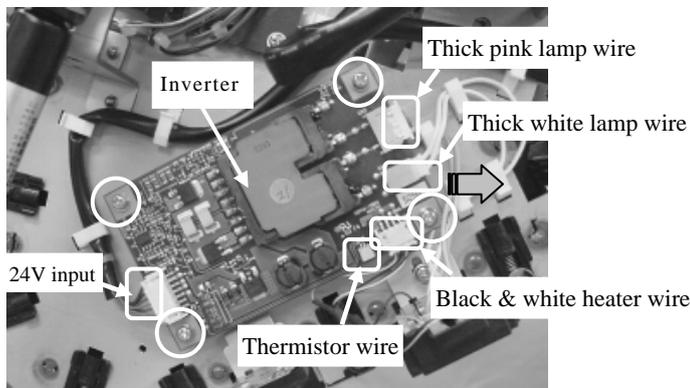
6.16.14 How to remove/install the Inverter

NOTICE

- The Inverter is located at left side of the Upper unit.
- It lights the lamp.
- Refer to Section 8.8 for the part number of the replacement parts.

<Removal>

- (1) Referring to steps (1) and (2) of Section 6.16.2, remove the Cover plate on the left side of the Upper unit.
- (2) Disconnect five (5) Inverter connectors (squares in the photo below).
- (3) Remove four (4) screws (circles in the photo below) that secure the Inverter and remove the Inverter.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 178/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

6.16.15 How to remove/install the CCD Unit

NOTICE

- This CCD unit scans front side images.
- It is located at rear of the Upper unit.
- Do not hold the CCD boards and mirrors. Be sure to hold the black frame. (Refer to Section 6.3.1.)
- Refer to Section 8.6 for the part number of the replacement parts.

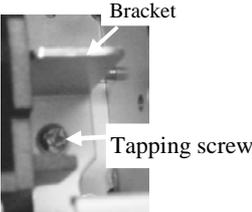
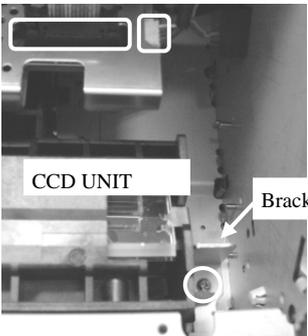
<Removal>

- (1) Referring to Section 5.16.1, remove the Lift ASSY.
- (2) Remove two (2) screws (circles in the photo on the right) that secure the stacker rear cover, then remove the stacker rear cover.



- (3) Disconnect two (2) CCD UNIT connectors (squares in the photo below).
- (4) Remove two (2) tapping screws that secure the CCD mounting brackets at each side of the CCD UNIT and remove the brackets. Then remove the CCD UNIT.

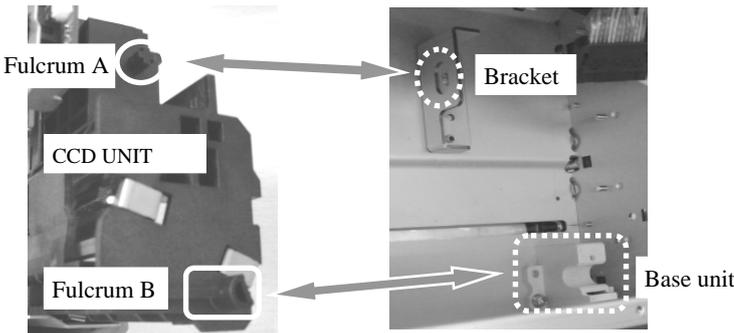
Note: Be careful not to drop the screws and brackets in the unit.



<Installation>

Follow the procedure above in reverse order.

Insert the fulcrum A on the CCD UNIT (solid circle in the photo lower left) into the bracket hole (dotted circle in the photo lower right). Then insert the fulcrum B (solid square in the photo lower left) into the Base unit (dotted square in the photo lower right).



When installing the Stacker Rear Cover, make sure that the tabs on the top are tucked under the upper frame.

- Notes: - Connect the CCD Unit connectors before you reinstall the CCD mounting brackets.
 - After replacing the CCD UNIT, perform the Offset adjustment (Section 7.1.4) and White level adjustment (Section 7.1.5).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

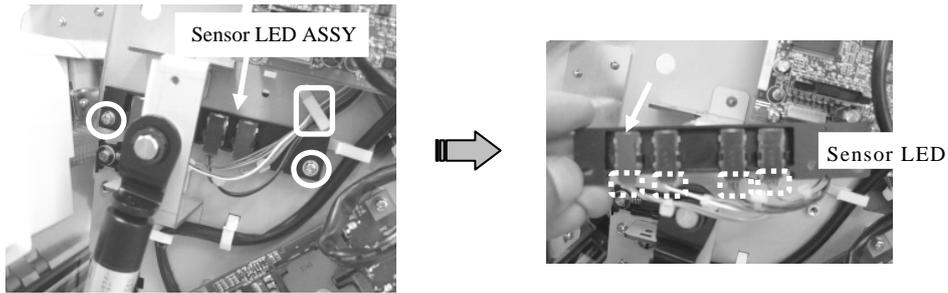
6.16.16 How to remove/install Sensor LED ASSY and Sensor LED

NOTICE

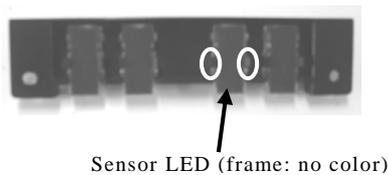
- The Sensor LED ASSY and Sensor LED are located at left side of the Upper unit.
- They are the stacker emission sensor.
- Refer to Sections 8.16 and 8.17 for the part numbers of the replacement parts.

<Removal>

- (1) Referring to how to remove the Cover plate at right side of the Upper unit in steps (1) and (2) of Section 5.16.2, remove the Cover plate at left side of the Upper unit.
- (2) Remove two (2) screws (circles in the photo lower left) that secure the Sensor LED ASSY.
- (3) Remove the Sensor LED ASSY cable from the (1) clamp (solid square in the photo lower left), then remove the Sensor LED ASSY. Disconnect four (4) connectors (dotted squares in the photo lower right).

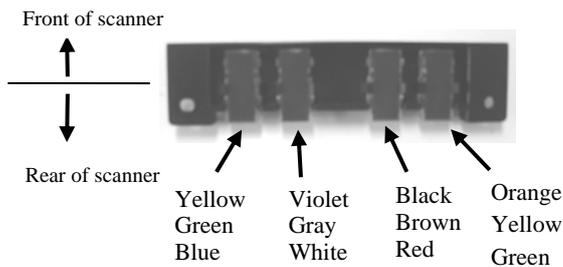


- (4) Spread the hooks (circles below) on each side of the Sensor LED and remove the Sensor LED.



<Installation>

Follow the procedure above in reverse order.
Install four (4) cables as shown in the photo below.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 180/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

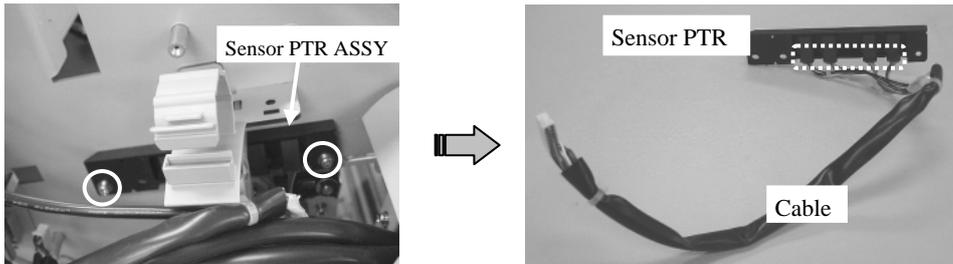
6.16.17 How to remove/install the Sensor PTR ASSY and Sensor PTR

NOTICE

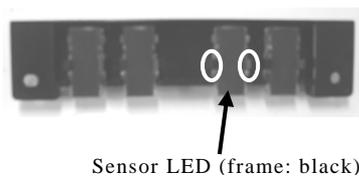
- The Sensor PTR ASSY and Sensor PTR are located at right side of the Upper unit.
- They are the stacker light reception sensor.
- Refer to Sections 8.14 and 8.15 for the part numbers of the replacement parts.

<Removal>

- (1) Referring to Section 6.16.3, remove the Driver PCA.
- (2) Remove two (2) screws (circles in the photo lower left) that secure the Sensor PTR ASSY and remove the Sensor PTR ASSY.
- (3) Disconnect four (4) connectors (dotted square in the photo lower right).

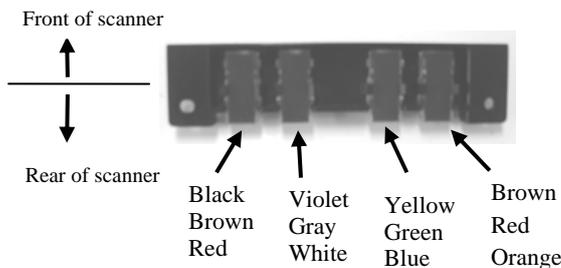


- (4) Spread the hooks (circles in the photo below) on each side of the Sensor PTR and remove the Sensor PTR.



<Installation>

Follow the procedure above in reverse order.
Install four (4) cables as shown in the photo below.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 181/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

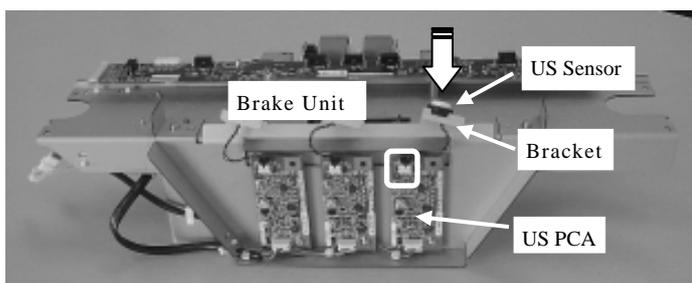
6.17 Replacing the US Sensors

- US Sensors (ultra sonic sensors, 6 pcs.) are installed in the following locations.
 1. Brake Torque Unit
 2. Separator Unit
- Refer to Section 8.9 for the part number of the replacement parts.

6.17.1 Brake Torque Unit

<Removal>

- (1) Referring to steps (1) and (2) of Section 6.15.3, remove the US PCA cover.
- (2) Disconnect the (1) US PCA connector (square in the photo below), push the US Sensor obliquely downward and pull it out of the bracket hole.



<Installation>

Follow the procedure above in reverse order.

Mount the US Sensor, and push it up from below of the bracket hole.

Notes:

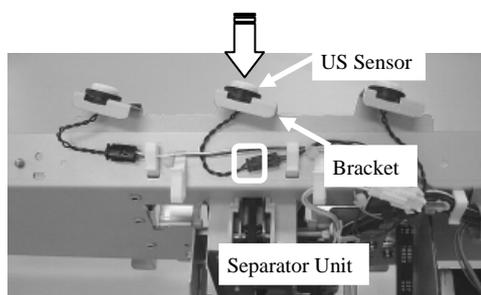
- Press the US Sensor until it bumps against the bracket.
- After replacing the US Sensor, perform the US Sensor adjustment in Section 7.1.9.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	182/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.17.2 Separator Unit

<Removal>

- (1) Referring to Section 6.16.5, remove the Separator Unit.
- (2) Disconnect the connector (square in the photo below) from the desired US sensors.
- (3) Push in the top of the US Sensor until it is removed from the mounting bracket.



<Installation>

Follow the procedure above in reverse order.

Install the US Sensor, and push it up from below of the bracket hole.

Notes:

- Press the US Sensor until the rubber grommet locks in to the bracket.
- After replacing the US Sensor, perform the US Sensor adjustment in Section 7.1.9.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	183/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.18 Replacing the Sensors

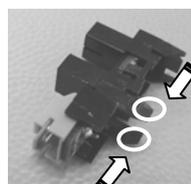
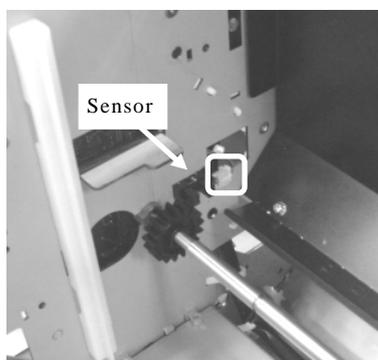
NOTICE

- The Sensors (horseshoe-shaped, 7 pcs.) are installed in the following locations.
 1. Left of Lift ASSY: Stacker Bottom Sensor (STKBTM_SE)
 2. Right of Hopper Channel: Hopper Bottom Sensor (HPBTM_SE)
 3. Back of Hopper Channel: Hopper Empty Sensor
 4. Right of Background Unit, Lower: Background Position Detection Sensor
 5. Right of Background Unit, Upper: Background Position Detection Sensor
 6. Separator Unit: Manual Feed Sensor, Pick Position Sensor
- Refer to Section 8.10 for the part number of the replacement parts.

6.18.1 Stacker Bottom Sensor (Left of Lift ASSY)

<Removal>

- (1) Referring to Section 6.16.1, remove the Lift ASSY.
- (2) Disconnect the (1) Sensor connector (square in the photo lower left) located at the left side of the Upper unit.
- (3) Pinch the claws (circles in the photo lower right) on each side of the Sensor, and remove the Sensor from the Upper Unit.



Pinch claws at both edges of the Sensor and remove them

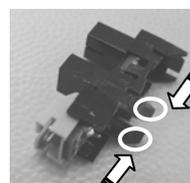
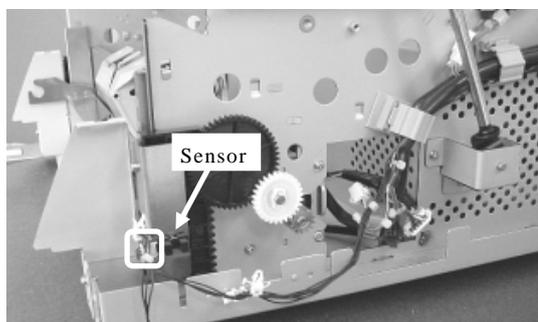
<Installation>

Follow the procedure above in reverse order.

6.18.2 Hopper Bottom Sensor (Right of Hopper Channel)

<Removal>

- (1) Referring to steps (1) ~ (3) of Section 6.15.12, remove the Cover plate at right side of the Base unit. **13**
- (2) Disconnect a Sensor connector (square in the photo lower left).
- (3) Pinch the claws (circles in the photo lower right) on each side of the Sensor, and remove the Sensor from the Hopper Channel.



Pinch claws at both edges of the Sensor and remove them

<Installation>

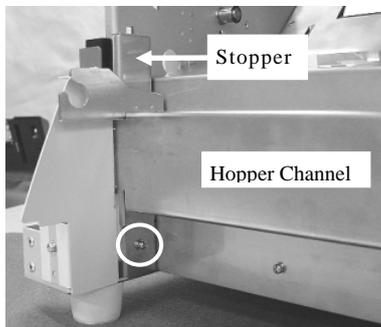
Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	184/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

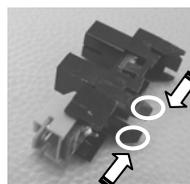
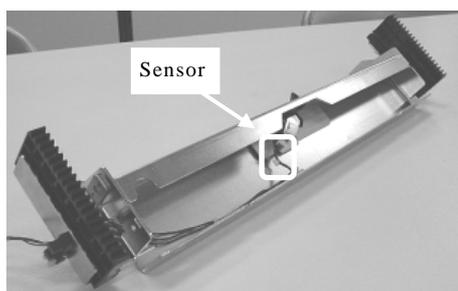
6.18.3 Hopper Empty Sensor (Back of Hopper Channel)

<Removal>

- (1) Referring to steps (1) ~ (3) of Section 6.15.12, remove the Cover plate at right side of the Base unit.
- (2) Lift the Hopper Channel manually about 5 cm (2 in).
- (3) Remove the (1) Hopper Channel stopper screw (circle in the photo below) on the left side of the Base unit and remove the stopper.



- (4) Lift up the Hopper Channel and pull it out off of the Base unit.
- (5) Disconnect the Sensor connector (square in the photo lower left).
- (6) Pinch the claws (circles in the photo lower right) on each side of the Sensor, and remove the Sensor from the Hopper Channel.



Pinch claws at both edges of the Sensor and remove them

<Installation>

Follow the procedure above in reverse order.

Note: Make sure the Hopper Channel is horizontal when installing.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	185/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

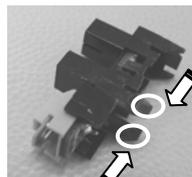
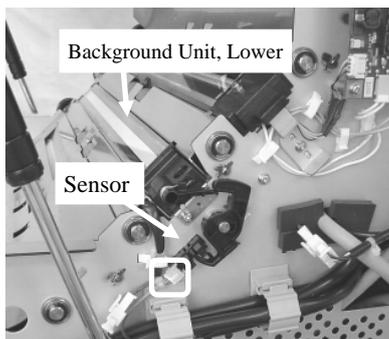
6.18.4 Background Position Detection Sensor (Right of Background Unit, Lower)

NOTICE

- Detects the background position of the document front.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top cover.
- (2) Referring to Section 6.6.4, remove the Right Side Cover.
- (3) Disconnect the (1) Sensor connector (square in the photo lower left).
- (4) Pinch the claws (circles in the photo lower right) on each side of the Sensor, remove them, and remove the Sensor from the Base Unit.



Pinch claws at both edges of the Sensor and remove them

<Installation>

Follow the procedure above in reverse order.

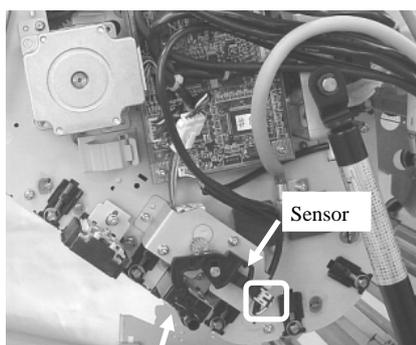
6.18.5 Background Position Detection Sensor (Right of Background Unit, Upper)

NOTICE

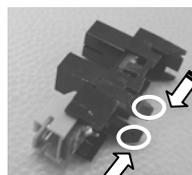
- Detects the background position of the document back.

<Removal>

- (1) Referring to steps (1) and (2) of Section 6.16.2, remove the Cover plate at right side of the Upper unit.
- (2) Disconnect the (1) Sensor connector (square in the photo lower left).
- (3) Pinch the claws (circles in the photo lower right) on each side of the Sensor, and remove the Sensor from the Upper Unit.



Background Unit, Upper



Pinch claws at both edges of the Sensor and remove them

<Installation>

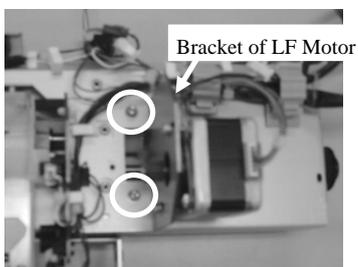
Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

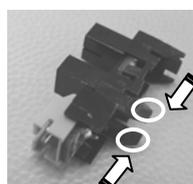
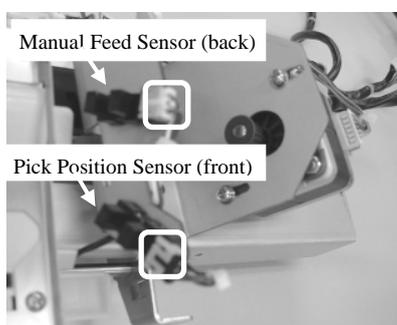
6.18.6 Manual Feed Sensor, Pick Position Sensor (Separator Unit)

<Removal>

- (1) Referring to steps (1) ~ (4) of Section 6.16.10, loosen the screws of the LF Motor and remove the Belt Pick from the LF Motor.
- (2) Remove two (2) bracket screws (circles in the photo lower left) of the LF Motor, and remove the bracket.



- (3) Disconnect the Sensor connectors (one for each sensor, squares in the photo below).
- (4) Pinch the claws (circles in the photo lower right) on each side of the Sensors, and remove the Sensors from the bracket.



Pinch claws at both edges of the Sensor and remove them

<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	187/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.19 Replacing the Sensor for SF3

NOTICE

- Prism Type Sensors are installed at the following three locations:
 1. Upper unit guide 1: Imprinter Top Sensor (IMP_TP_SE)
 2. Background Unit, Lower: Read Top Sensor (RED_TP_SE)
 3. Base unit guide 2: Reject Sensor (REJ_SE)
- Refer to Section 8.11 for the part number of the replacement parts.

6.19.1 Imprinter Top Sensor (Upper unit guide 1)

<Removal>

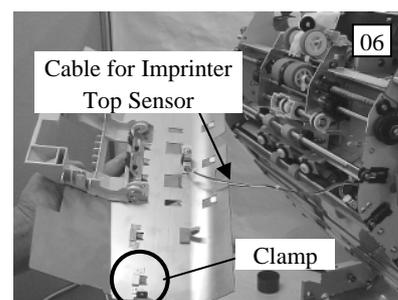
- (1) Referring to the step (1) and (4) in Section 6.16.5, remove the Upper unit guide 1.
- (2) Disconnect the (1) Imprinter Top Sensor connector connected to the back of the Upper unit guide 1.
- (3) Remove the (1) screw (circle in the photo below) that secures the Imprinter Top sensor to remove.



<Installation>

Follow the procedure above in reverse order.

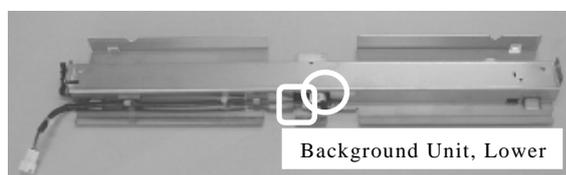
Note: When installing the Upper unit guide 1, be sure to secure the cable which is connected to the Imprinter Top sensor to the cable clamp. Otherwise, the cable may touch the roller and get damaged. 06



6.19.2 Read Top Sensor (Background Unit, Lower)

<Removal>

- (1) Referring to Section 6.15.6, remove the Background Unit, Lower.
- (2) Disconnect the Read Top Sensor connector (square in the photo below) installed on the Background Unit, Lower.
- (3) Remove the (1) screw (circle in the photo below) that secures the sensor and remove the Read Top Sensor.



<Installation>

Follow the procedure above in reverse order.

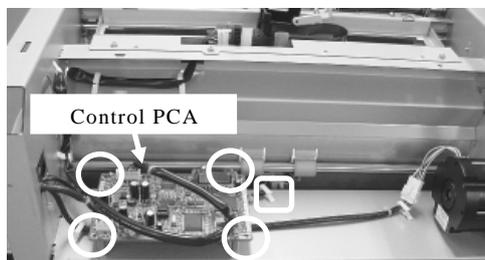
Note: After replacing the Read Top Sensor, perform the Offset adjustment (Section 7.1.4).

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	188/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.19.3 Reject Sensor (Base unit guide 2)

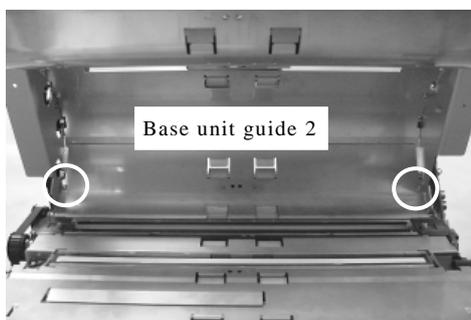
<Removal>

- (1) Referring to the step (1) ~ (7) of Section 6.15.1, open the Upper unit until the Gas damper is stretched to the maximum.
- (2) [When Post-Imprinter is installed] (If not installed, go to step (3).)
 1. Remove four (4) screws that secure the Post-Imprinter Control PCA on the back side of the Base unit (circle in the photo below) and remove the Imprinter Control PCA.



2. Remove the Post Imprinter cable from the (1) clamp (square in the photo above).
 - (3) Remove two (2) screws that secure the Base unit guide 2 (circle in the photo lower left) and remove the Base unit guide 2.

Note: Remove the Base unit guide 2 slowly in order not to cut the Reject Sensor cable.

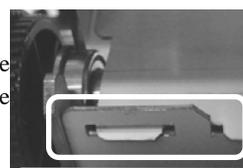


- (4) Disconnect the (1) Reject Sensor connector (square in the photo above right). Remove the (1) screw (circle in the photo above right) that secures the Reject Sensor and remove the Sensor.

<Installation>

Follow the procedure above in reverse order.

Note: Insert the claws on both sides of the Base unit guide 2 into the (2) holes of the Base unit frame (above the lamp).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	189/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.20 Replacing the Sensor for JAM

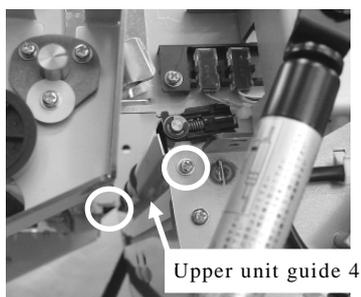
NOTICE

- Three (3) of Sensors for JAM (Reflection sensors) are installed in the following three locations.
 1. Upper unit guide 4: Exit Sensor
 2. Lower side of the Upper unit: JAM1 Sensor
 3. Back side of the Upper unit: JAM2 Sensor
- Refer to Section 8.12 for the part number of the replacement parts.

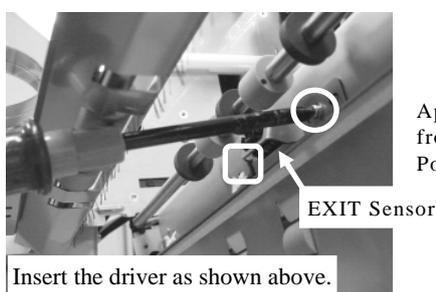
6.20.1 Exit Sensor (Upper unit guide 4)

<Removal >

- (1) Referring to the step (1) to (7) of Section 6.15.1, open the Upper unit until the Gas damper is stretched to the maximum.
- (2) Remove two (2) screws that secure the Upper unit guide 4 and remove it from the Upper Unit.

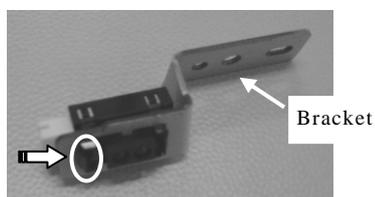


- (3) Remove the (1) screw (circle in the photo below) that secures the bracket where the EXIT Sensor is mounted and remove the bracket.
- (4) Disconnect the (1) EXIT Sensor connector (square in the photo below).



Apply a screwdriver from underneath of the Post-imprinter.

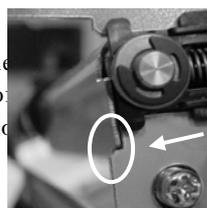
- (5) Pinch the claws (circle in the photo below) on each side of the EXIT Sensor, and remove the EXIT Sensor from the bracket.



<Installation>

Follow the procedure above in reverse order.

Note: Bump the right and left edges of the Upper unit guide 4 against the groove of the Upper unit frame and screw it not to make opening.



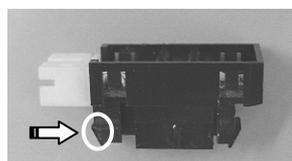
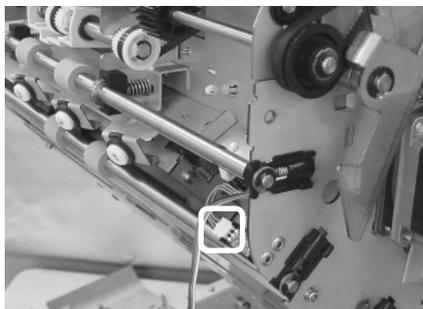
Bump both edges of the Upper unit guide 4 against the groove of the upper unit frame.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 190/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.20.2 JAM1 Sensor (Lower part of the Upper unit)

<Removal>

- (1) Referring to the step (1) to (4) in Section 6.16.5, remove the Upper unit guide 1.
- (2) Disconnect a connector of the JAM1 Sensor (square in the photo lower left).
- (3) Remove the claw of the JAM1 Sensor (circle in the photo lower right) and remove the sensor.



Remove the claw of the JAM1 Sensor

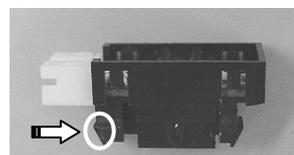
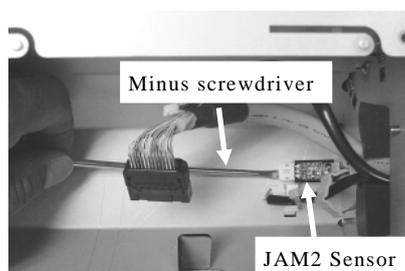
<Installation>

Follow the procedure above in reverse order.

6.20.3 JAM2 Sensor (Back side of the Upper unit)

<Removal >

- (1) Referring to Section 6.16.10, remove the CCD Unit.
- (2) Remove a cable of the JAM2 Sensor from the clamp and disconnect the connector (square in the photo lower left).
- (3) Insert a minus screwdriver in the gap at the bottom of the JAM2 Sensor, remove the claw and detach the sensor.



Remove the claw of the JAM2 Sensor

<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 191/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

6.21 Replacing the Microswitch

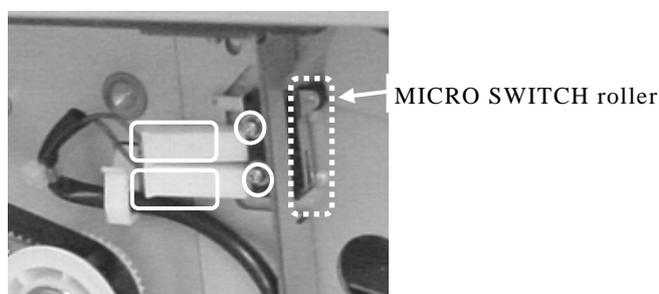
NOTICE

- Microswitches are installed at the following locations.
 1. Left side of the Base unit: ADF Cover Open Sensor
 2. Front side of the Upper unit: Imprinter Cover Open Sensor
- Refer to Section 8.13 for the part number of the replacement parts.

6.21.1 ADF Cover Open Sensor (Left side of the Base unit)

<Removal>

- (1) Referring to Section 6.6.2, remove the Top cover.
- (2) Referring to Section 6.6.3, remove the Left side cover.
- (3) Disconnect two (2) connectors of the Microswitch (solid squares in the photo below).
- (4) Fixing the nut with a plier, unscrew (2) screws of the Microswitch (circle in the photo below) and remove it.

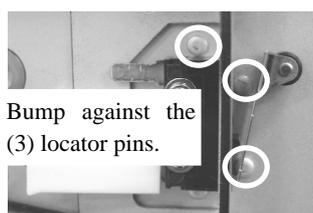


<Installation>

Follow the procedure above in reverse order.

Notes:

- Install the Microswitch roller upwards (dotted square in the photo above).
- Bump the Microswitch against three (3) locator pins (circles in the photo below) and screw it.



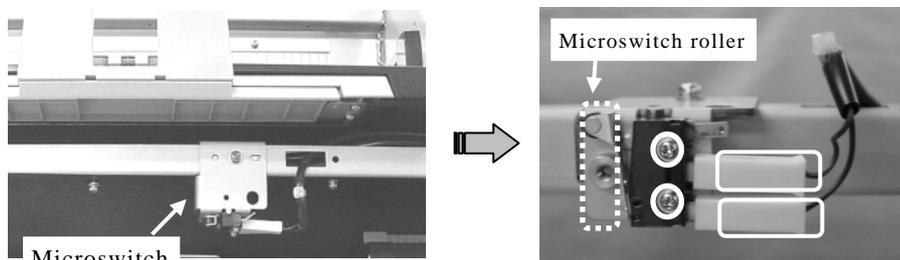
- Connect the Red cable on the middle pin of the Microswitch and the Brown cable on the lower pin.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	192/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

6.21.2 Imprinter Cover Open Sensor (Front of Upper unit)

<Removal>

- (1) Referring to Section 6.6.1, remove the Front cover.
- (2) Open the Upper unit and disconnect two (2) connectors (square in the photo lower left).
- (3) Remove two (2) screws of the Microswitch (circles in the photo lower right) and remove it.

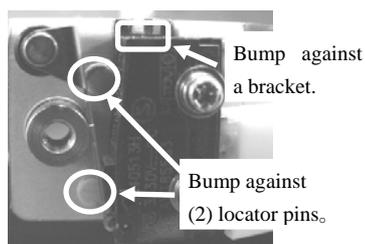


<Installation>

Follow the procedure above in reverse order.

Notes:

- Install the Microswitch roller upwards (dotted square in the photo above).
- Bump the Microswitch against two (2) locator pins (circles in the photo below) and a bracket, and screw it.



- Connect the Red cable on the middle pin of the Microswitch and the Brown cable on the lower pin.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	193/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.22 Replacing the Pad Base ASSY

NOTICE

- This is a Pad cover.
- Refer to Section 8.53 for the part number of the replacement parts.

<Removal>

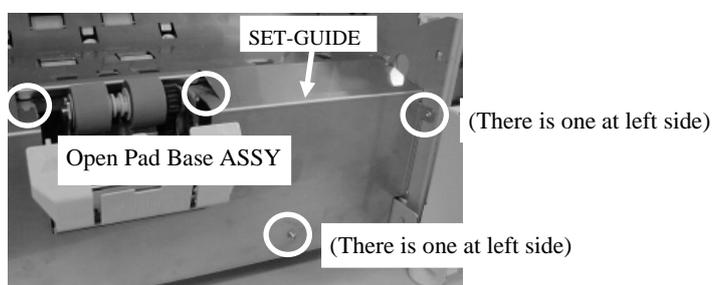
(1) Referring to steps (1) ~ (3) of Section 6.18.3, pull out the Hopper Channel.

(2) Referring to Section 6.6.3, remove the left side cover.

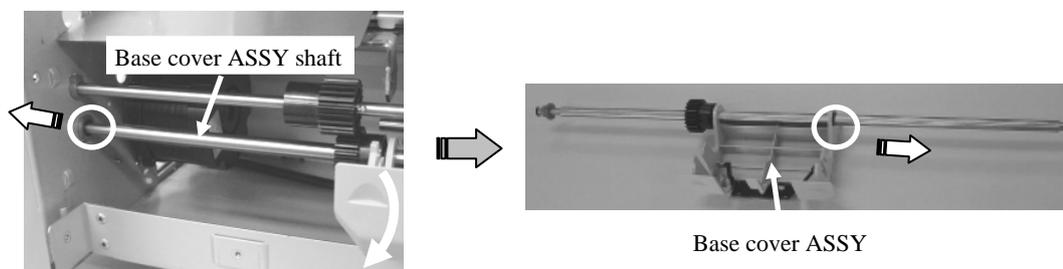
(3) Remove the (1) screw (circle in the photo below) on the Stopper at right side of the Base unit, and remove the Stopper.



(4) Remove six (6) screws (circles in the photo below) of the SET-GUIDE (front partition) and remove the SET-GUIDE.



(5) Remove the (1) ring (circle in the photo lower left) at left edge of the Pad Base ASSY shaft. Sliding the Pad Base ASSY shaft toward left, remove its right edge toward front and remove it.

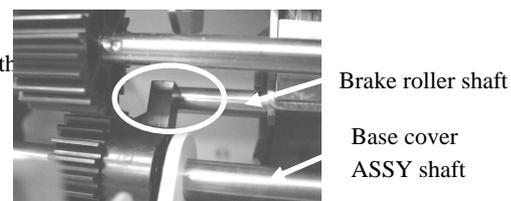


(6) Remove the (1) ring (circle in the photo upper right) of the Pad Base ASSY and pull the Pad Base ASSY out of the shaft.

<Removal>

Follow the procedure above in reverse order.

Note: When installing the Pad Base ASSY shaft, be sure that the protrusion on the gear comes above the Brake roller shaft.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 194/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	194/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

6.23 (Reserved)

6.24 (Reserved)

6.25 (Reserved)

6.26 (Reserved)

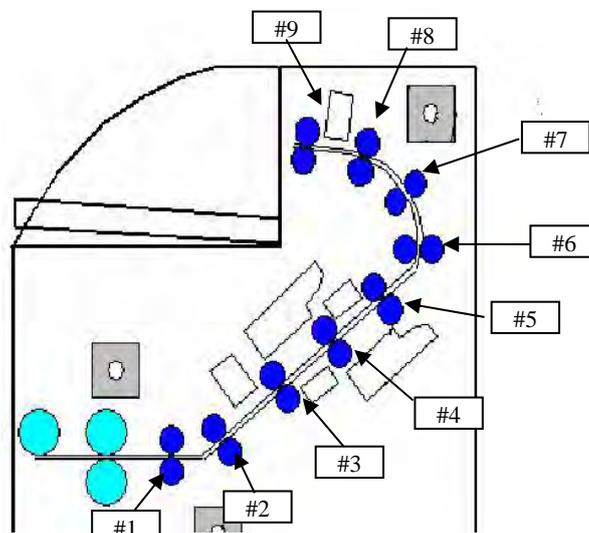
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	195/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.27 Replacing the FEED-ROLLER-K

NOTICE

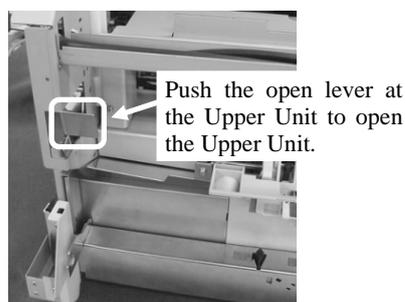
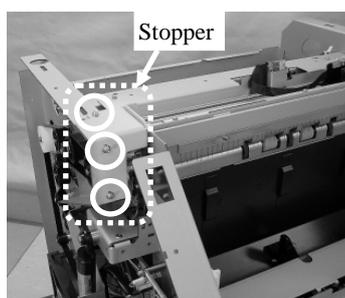
- Refer to Section 8.60 for the part number of the replacement parts.
- Feed rollers are named #1 to #9 from the front of the Base unit.

Location	Roller name
1	ROLLER-ASSY1B
2	ROLLER-ASSY1B
3	ROLLER-ASSY2B
4	ROLLER-ASSY3B
5	ROLLER-ASSY4B
6	ROLLER-ASSY4B
7	ROLLER-ASSY4B
8	ROLLER-ASSY4B
9	ROLLER-ASSY4B

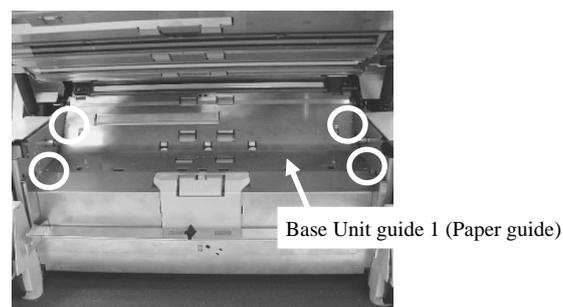


<Preparation>

- (1) Referring to Section 6.5.1, remove the Hopper Unit.
- (2) Referring to Section 6.6.1, remove the Front Cover.
- (3) Referring to Section 6.6.2, remove the Top Cover.
- (4) Referring to Section 6.6.3, remove the Left side Cover.
- (5) Referring to Section 6.6.4, remove the Right side Cover.
- (6) Remove three screws (circles in the photo lower left) for the stopper at the upper left of the Base Unit to remove the stopper.
- (7) Open the Upper Unit until the gas dumper is stretched all the way.



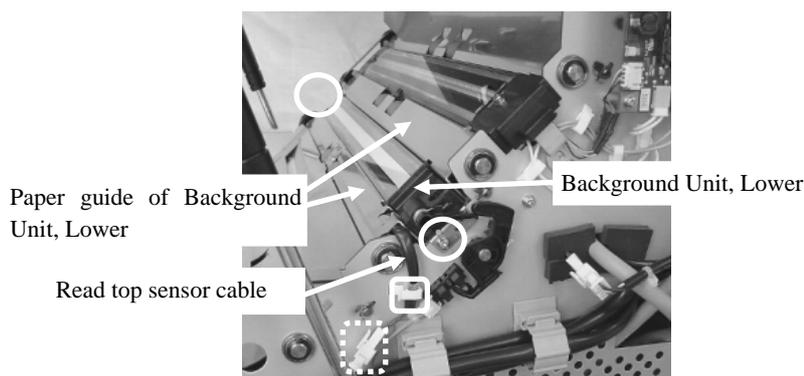
- (8) Remove four screws (circles on the right) on the Base Unit guide 1 (paper guide), and then remove the Base Unit guide 1 (paper guide).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 196/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	196/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(9) Remove two screws (circles below) for the Background Unit Lower to remove the Background Unit Lower.

Note: Paper guide and Read top sensor are included in the Background Unit Lower.



(10) Unhook the Read top sensor cable from the clamp (solid square above), and then disconnect the relay connector (dotted square above).

After removing background Unit Lower, place (no need to screw) Base Unit Guide 1, which has been removed in the procedure (8), to prevent dropping screws inside in the following procedures.

(11) Remove two screws (circles below) of the Glass ASSY on the lamp unit.



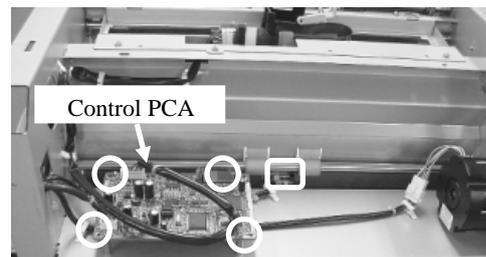
(12

If the Post-Imprinter is installed:

(If the Post-Imprinter is not installed, go to step (13).)

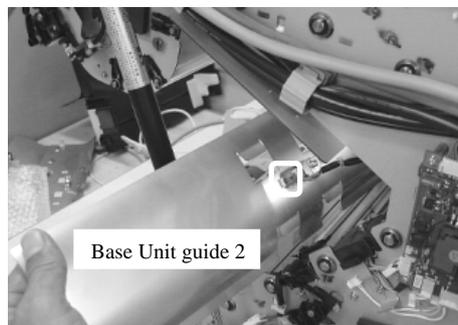
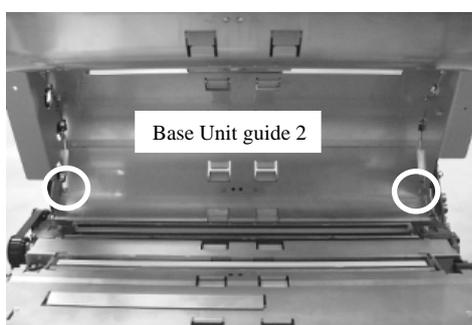
[1] Remove four screws (circles on the right) for the Post-Imprinter Control PCA at the back of the Base Unit to remove the Control PCA.

[2] Unhook the Post-Imprinter cable from the clamp (square on the right).



(13) Remove two screws (circles in the photo on the lower left) for the Base Unit guide 2, and then open the Base Unit guide 2.

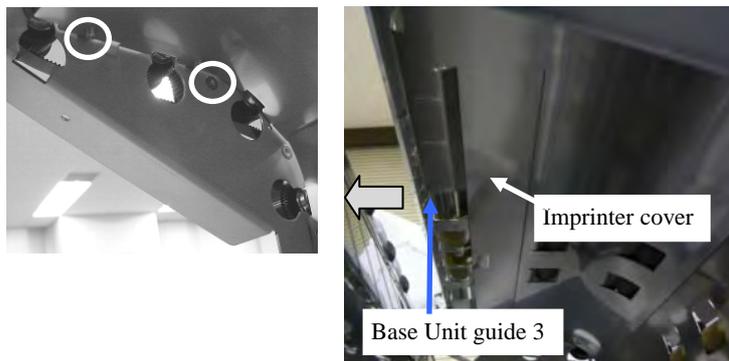
Note: Open the Base Unit guide 2 slowly to prevent the reject sensor cable from being cut out.



(14) Disconnect the Reject Sensor connector (square in the photo on the upper right), and then remove the Base Unit guide 2.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	197/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

- (15) Remove four screws (circles in the photo on the lower left) at the both sides of the Base Unit guide 3.
- (16) As shown in the photo on the lower right, the Base Unit guide 3 is hooked on the Imprinter cover. Pull the Base Unit guide 3 toward the front of the scanner (in the direction of the arrow in the photo on the lower right) to unhook, and then remove the Base Unit guide 3.

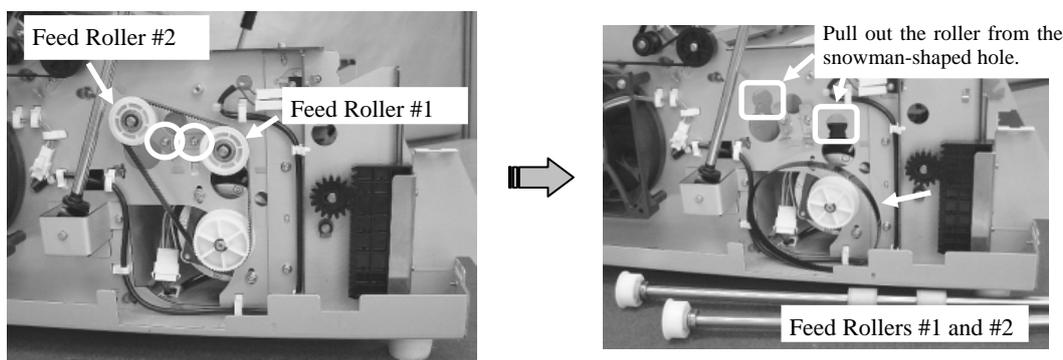


After removing all guides above, remove Base Unit Guide 1, which has been placed in the procedure (10)..

- (17) Loosen plate spring screws (one for each Feed Roller) for the Feed Rollers #1 and #2 at the left side of the Base Unit until the threads do not protrude from inner aspect of the frame, and then release the bearing lock on the plate spring.
- (18) Pull out the Feed Rollers #1 and #2 obliquely from the wider opening of the snowman-shaped holes at the left side of the Base Unit.

Notes: - Do not touch the fixing screw for the feed motor.

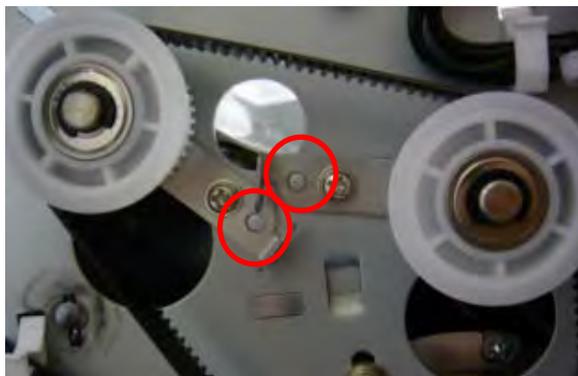
- When removing the Feed Rollers, be careful not to damage the Sensor PCA and US Sensor.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	198/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

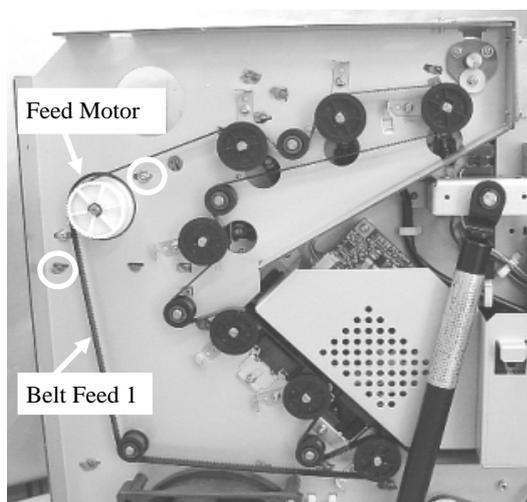
- (19) Install the ROLLER-ASSY1B (Refer to Section 8.59) to where the Feed Roller #1 was installed in the reverse order of step (18). Install the other ROLLER-ASSY1B to where the Feed Roller #2 was installed in the reverse order of step (18).

Notes: - Make sure to fit the plate springs to the dowels (red circles below) and tighten the screws.



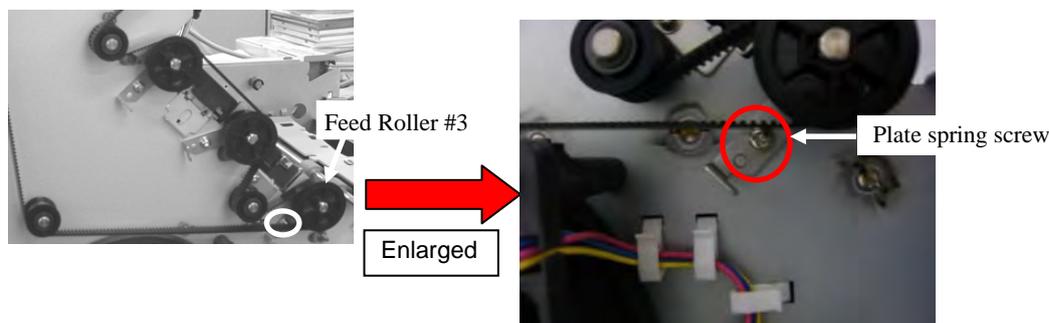
- Install the Feed Roller #1 at first, and then install the Feed Roller #2 upward with the belt hung, so that belt tension adjustment is not necessary.

- (20) Loosen the fixing screw for the Feed motor on the upper left of the Base Unit to remove the Belt Feed 1.



- (21) Loosen the plate spring screw (circle in the photo lower left, red circle in the photo lower right) for the Feed Roller #3, release the bearing lock on the plate spring, and then pull out the Feed Roller #3 toward the pulley. Install the ROLLER-ASSY2B (Refer to Section 8.59) to where the Feed Roller #3 was installed in the reverse order of removal.

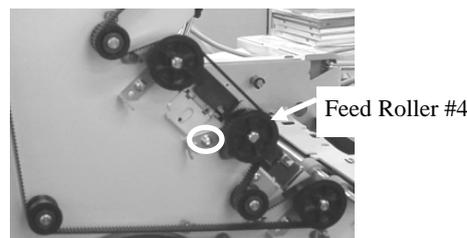
Notes: -Make sure to fit the plate spring to the dowel (red circle below) and tighten the screw.



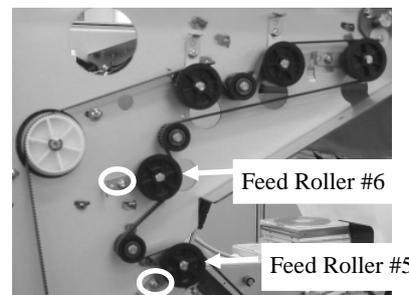
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 199/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(22) Loosen the plate spring screw (circle on the right) for the Feed Roller #4, release the bearing lock on the plate spring, and then pull out the Feed Roller #4 to the left. Install the ROLLER-ASSY3B (Refer to Section 8.59) to where the Feed Roller #4 was installed in the reverse order of removal.

Note: Make sure to fit the plate spring to the dowel and tighten the screw.

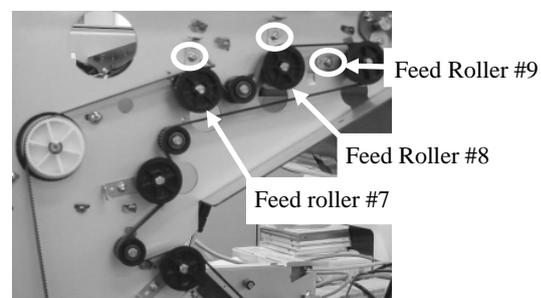


(23) Loosen the plate spring screws (circles on the right) for the Feed Rollers #5 and #6, release the bearing locks on the plate springs, and then pull out the Feed Rollers #5 and #6 to the left. Install the ROLLER-ASSY4Bs (Refer to Section 8.59) to where the Feed Rollers #5 and #6 were installed in the reverse order of removal.



(24) Loosen the plate spring screws (circles on the right) for the Feed Rollers #7 to #9, release the bearing locks on the plate springs, and then pull out the Feed Rollers #7 to #9 to the left. Install the ROLLER-ASSY4Bs (Refer to Section 8.59) to where the Feed Rollers #7 to #9 were installed in the reverse order of removal.

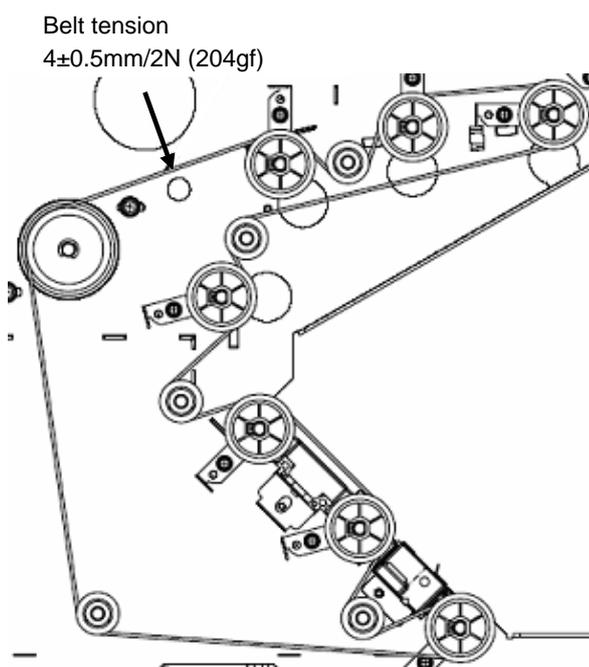
Note: Make sure to fit the plate springs to the dowels and tighten the screws.



<Assembling the removed parts>

(25) Install the Belt Feed 1 in the reverse order of step (20).

Adjust the tension of the Belt Feed 1 as shown below, and then secure the Feed Motor.

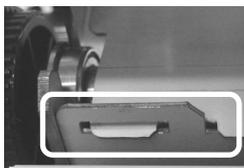


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 200/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(26) Install the following parts in the reverse order of the removal.

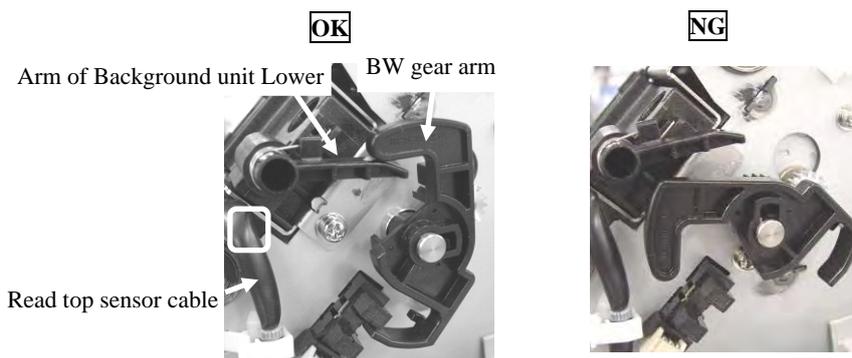
- Install the Base Unit guide 3 in the reverse order of steps (15) and (16).
- Install the Base Unit guide 2 in the reverse order of steps (13) and (14).

Note: Insert the claws at the both sides of the Base Unit guide 2 into two holes on the Base Unit frame (above the lamp).



- Install the Glass ASSY in the reverse order of step (11).
- Install the Background Unit Lower in the reverse order of steps (9) and (10).

Note: Install the BW gear arm as shown in the photo on the lower left.

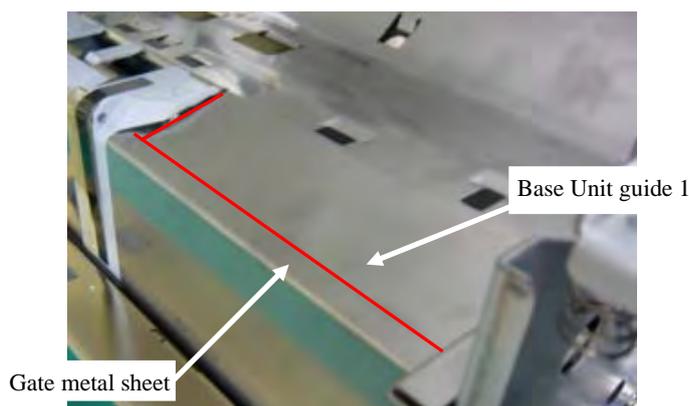


Notes:

- Route the Read Top Sensor cable through the gap (square in the photo upper left) between the Base unit frame and the Background unit, Lower.
- Bump both the left and right edges of the Background Unit Lower to the Base unit frame, then fix with screws not to make a gap.

- Install the Base Unit guide 1 in the reverse order of step (8).

When installing the Base Unit guide 1, make sure that the Base Unit guide 1 is positioned under the gate metal sheet.



<Installing the Covers>

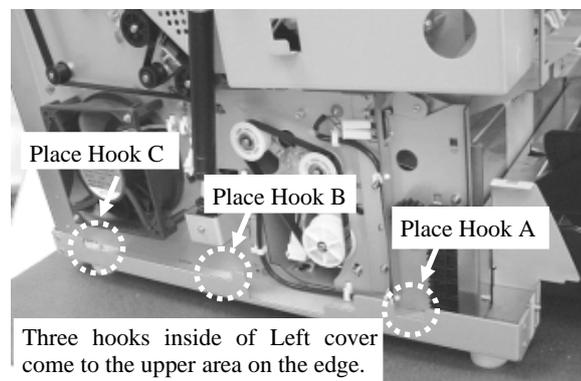
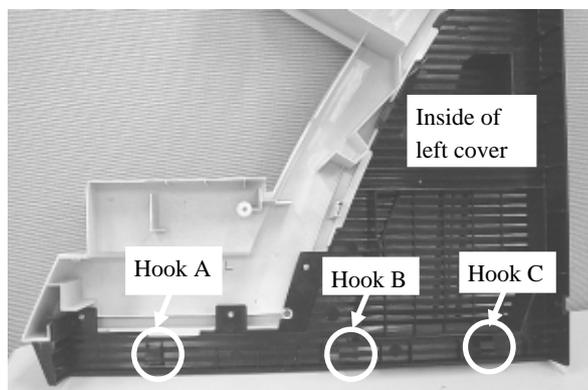
(27) Lower the Upper Unit a bit (press the gas damper a bit), install the stopper at upper left of the Base Unit in reverse process of procedure (6). Then, install the following covers.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	201/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

- Install the left side cover in the reverse order of step (4).

Notes:

- Make sure that three hooks (solid circles in the photo on the lower left) inside of the left side cover are positioned on the upper area (dotted circles in the photo on the lower right) of the edge at the bottom frame of the scanner.



- Insert the claw (circle on the right) at the front of the Side cover into the COVER-PLATE hole.
- Trace the edge line at the bottom of the Side cover with a hand to make sure that any hook is not unhooked.
- Lower the side cover all the way down until it bumps, and then tighten three screws (refer to step (3)).

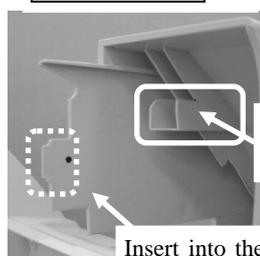


- Install the Right side cover in the reverse order of step (5).
- Install the Top cover in the reverse order of step (3).
- Install the Front cover in the reverse order of step (2). (Refer to the procedure below.)
- (a) Close the Upper Unit (ADF cover). With the Pre-Imprinter cover opened, install the Front cover.
- (b) Insert two Front cover claws (squares in the photo on the lower right) into the Upper Unit frame hole.

Upper Unit frame



Inside front cover



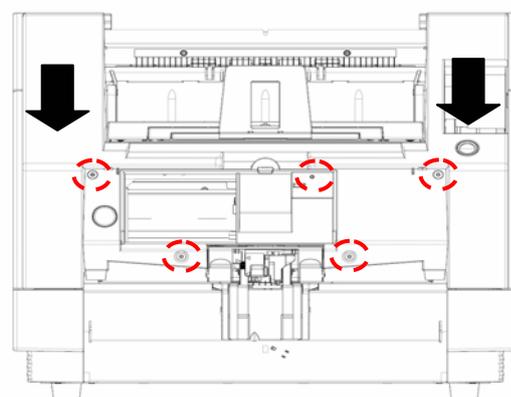
Insert into the hole marked with solid square on the left.

Insert into the hole marked with dotted square on the left.

- (c) Push in the Front cover horizontally until it bumps.

Notes:

- Lifting up the front of the stacker a bit installs the Front cover smoothly.
- Bumping the Front cover downward, tighten five screws (circles below).



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	202/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

- (28) Perform the following adjustments, reset the counter, and confirm adjustment completion.
- (a) Sub-scanning magnification adjustment (Section 7.1.10)
 - (b) Offset adjustment (Section 7.1.4)
 - (c) Feed roller counter reset (Section 7.1.6)
 - (d) Confirmation of Feed roller adjustment completion (Section 7.1.7)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	203/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

6.28 Replacing the RUBBER-ROLLER-K

NOTICE

- Refer to Section 8.59 for the part number of the replacement parts.
- Following Scanner firmware and driver is required for the installation/application of this unit.

Firmware:

Firmware type	Firmware version	Version (Maintenance mode #6)
SDC	0N00 or later	1400 or later
MDC	0K00 or later	1100 or later
PUC	0E00 or later	0500 or later

Driver: Fujitsu Scanner Control Center: Later than "V2.4.2.99"

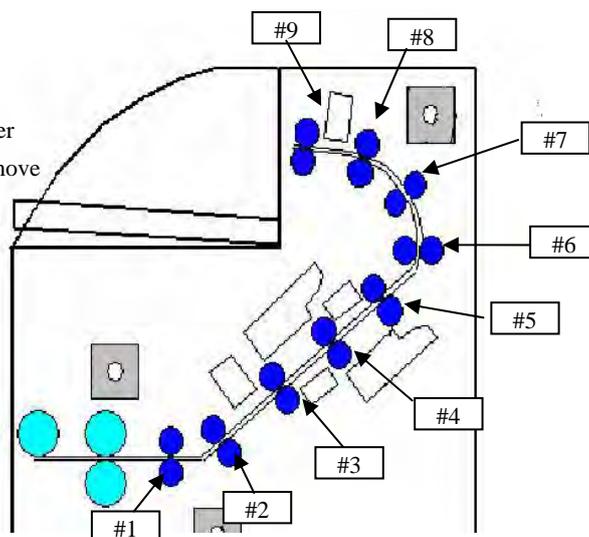
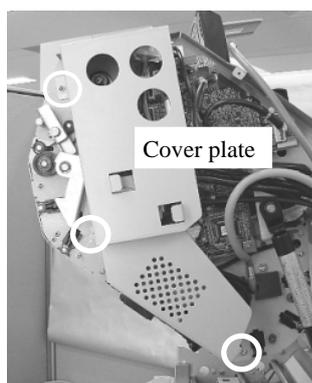
- Let your customer know that this feed roller shall be cleaned by F1 Cleaner, NOT Cleaner F2.

<Replacing the Feed Roller>

- Replace the Feed Rollers #1 ~ #9 by referring to Section 6.27
"Replacing the FEED-ROLLER-K."

<Preparation>

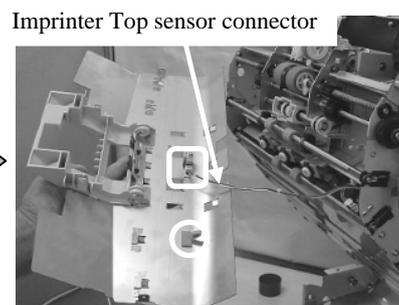
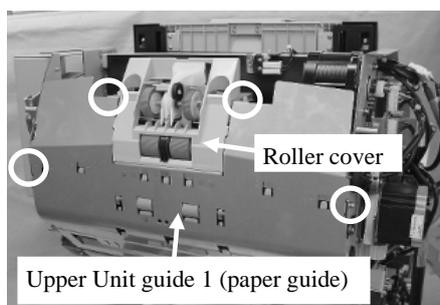
- Open the Upper Unit, remove three screws on the cover plates at the right side of the Upper Unit, and then remove the Cover plate.



- In the same way, remove the Cover plate at the left side of the Upper Unit.
- Remove four screws (circles on the photo in the lower left) on the Upper Unit guide 1 (paper guide).
- Open the roller cover, and then open the UPPER-GUIDE1B (paper guide).

Note: Open the roller cover slowly to prevent the Imprinter Top sensor cable at the back of Upper Unit guide 1 from being cut off.

- Disconnect the Imprinter Top sensor connector (square on the photo in the lower right) at the back of the Upper Unit guide 1, unhook it from the cable clamp (circle on the photo in the lower right), and then remove the Upper Unit guide 1.

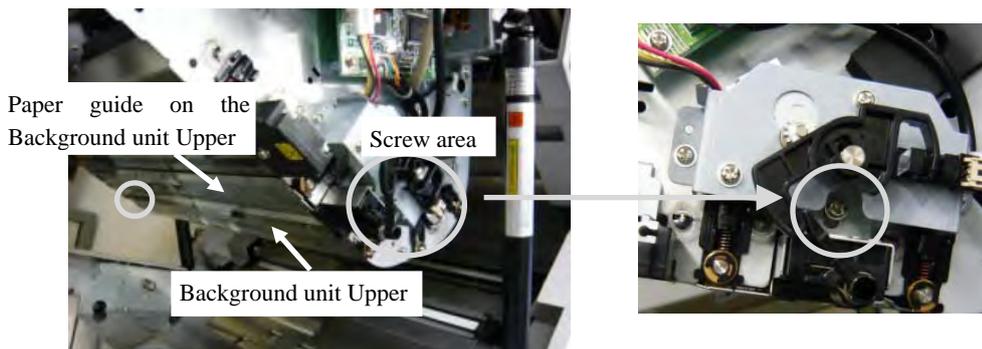


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 204/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	204/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(7) Remove four screws (circles below) on the REV-GUIDE-2, and then remove the REV-GUIDE-2.



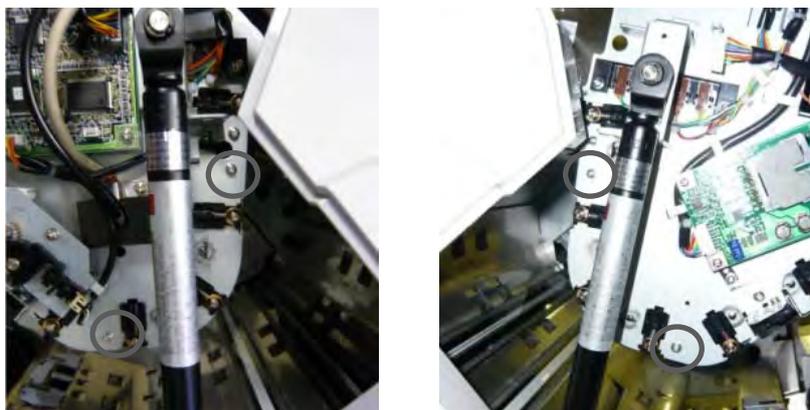
(8) Remove two screws (circles below) on the Background unit Upper, and then remove the Background unit Upper.



Notes:

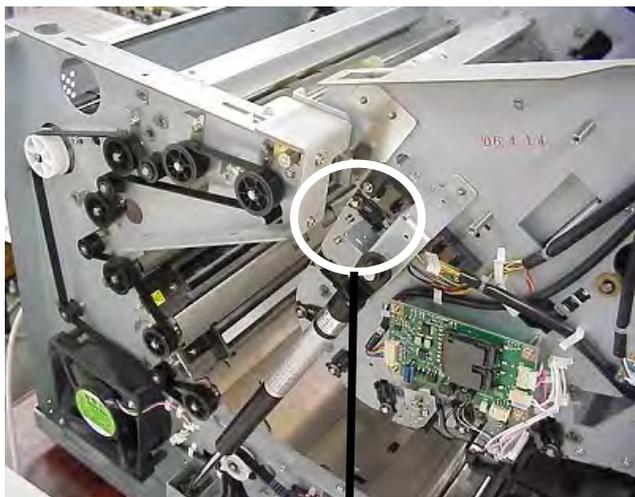
- Grasp the Background unit Upper tightly so that it will not fall off.
- The screws on the Background unit Upper are special-shaped "Guide pin" screws.

(9) Remove screws (circles below, two on the left and two on the right) on the REV-GUIDE3-ASSY, and then remove the REV-GUIDE3-ASSY.

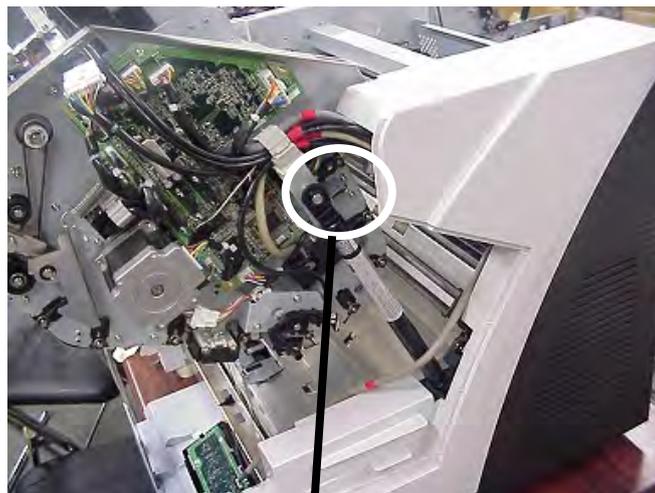


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	205/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

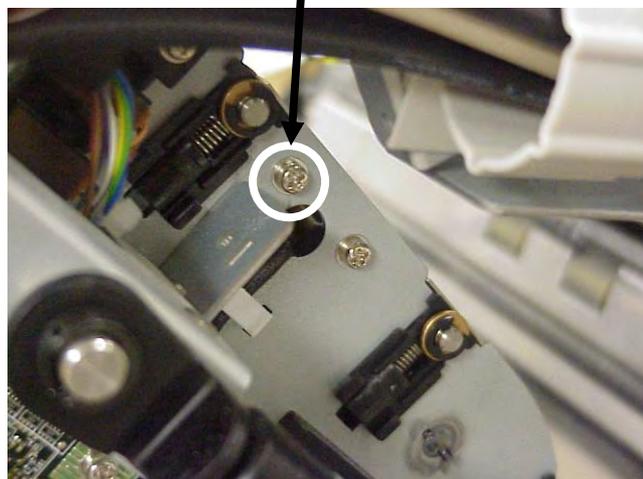
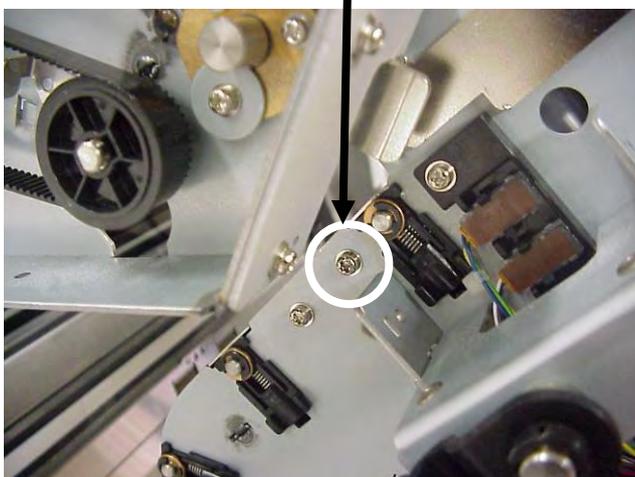
(10) Remove screws (one for each side) on the REV-GUIDE-4.



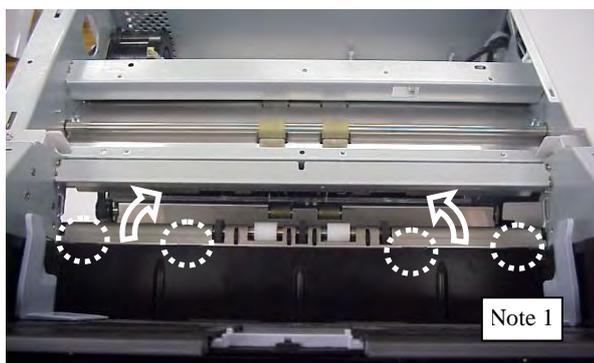
Left side of Scanner



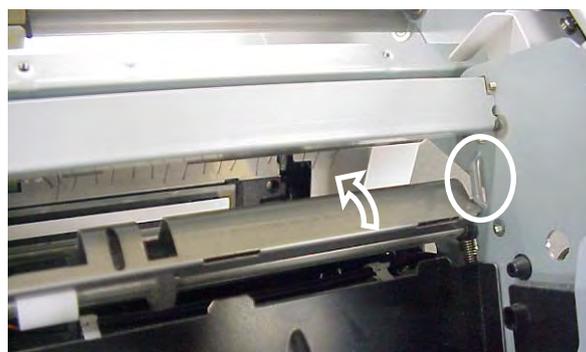
Right side of Scanner



(11) The REV-GUIDE-4 is mounted with four points dot-circled in the photo left below. Lifting it front-upward, pull it out backward. (Refer to the photo right below.)

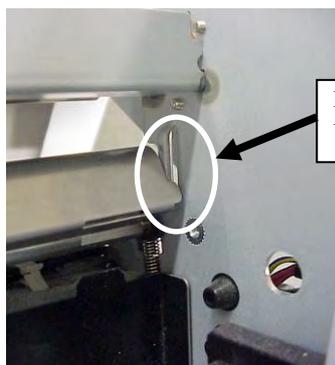


Note 1



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	206/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Note: As shown in left below, avoiding the protrusion, pull out the REV-GUIDE-4 backward (both right and left sides).

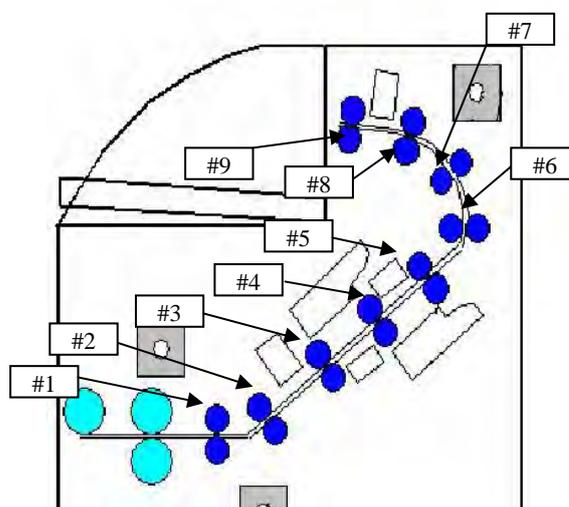


Be careful!
Very hard to pull out if stuck like this.

<Replacing Pinch Rollers #1~#9>

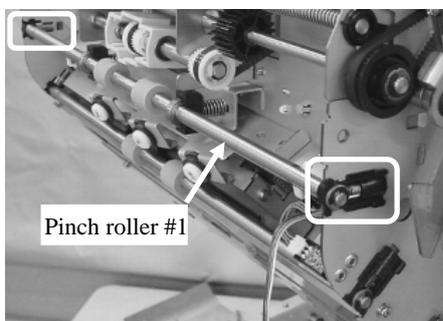
- Pinch rollers are named #1 to #9 from the front of the Upper unit (ADF cover).

Location	Roller name
#1	PINCH-ASSY2B
#2	PINCH-ASSY1B
#3	PINCH-ASSY4B
#4	PINCH-ASSY4B
#5	PINCH-ASSY4B
#6	PINCH-ASSY1B
#7	PINCH-ASSY1B
#8	PINCH-ASSY1B
#9	PINCH-ASSY3B



(12) Pinch two black brackets (squares in the lower left photo) at both sides of the Pinch roller with fingers as shown in the lower right photo, open them up outward, remove the Pinch roller #1 downward.

Note: The spring on the Punch roller bracket is easy to pop. Pull the Pinch roller forward slowly.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 207/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	207/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

- (13) Check that the spring on the PINCH-ASSY2B (Section 8.59) is mounted on the resin part attached to the roller shaft. If the spring is not mounted properly, fit it to the protrusion in Fig.6.28-1, hook it on the tab to avoid it falling off.
 Note: The Pinch roller springs to attach to #3, #4, and #5 are painted in red. Distinguish them from other pinch roller springs.

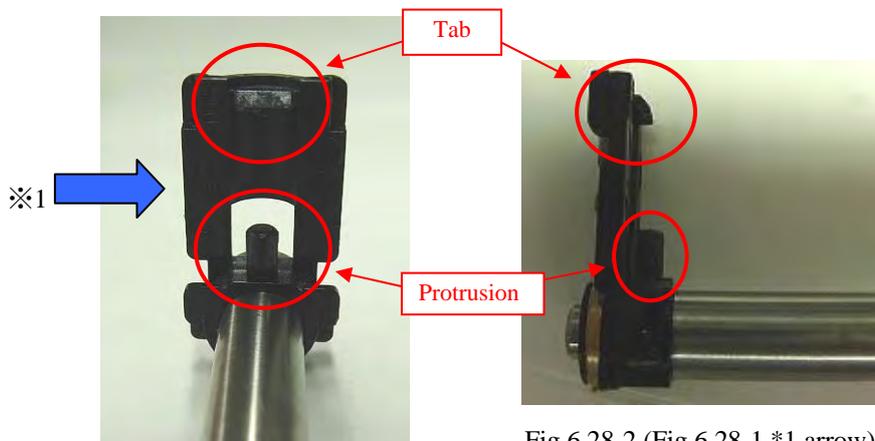


Fig.6.28-1

Fig.6.28-2 (Fig 6.28-1 *1 arrow)



Fig.6.28-3 (spring mounted)

- (14) Face the “CUT” side on the shaft of the PINCH-ASSY2B to the right side of the scanner, and then install the PINCH-ASSY to the metal plate on the scanner.

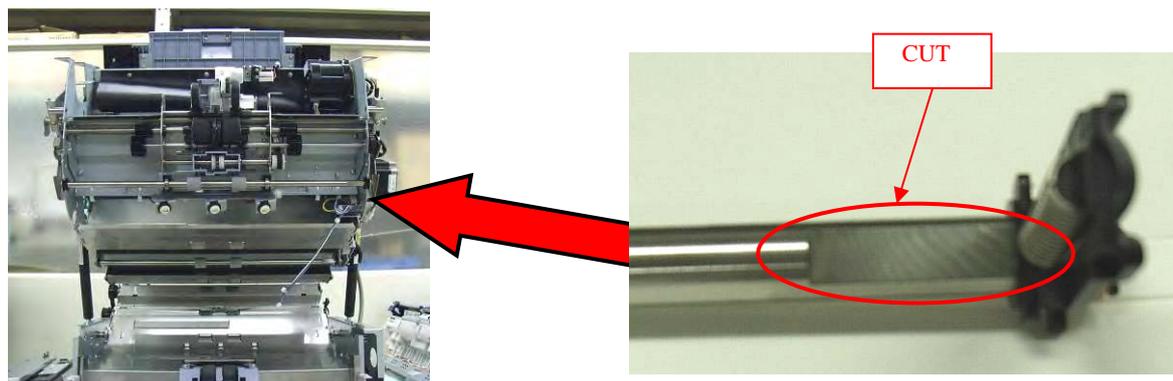


Fig.6.28-4

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	208/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

Note: When installing the PINCH-ASSY, fit the spring to the protrusion dot-circled in the Fig.6.28-7, hook the tab at the resin part of the roller shaft on the metal plate on the scanner (solid circle in Fig.6.28-7).

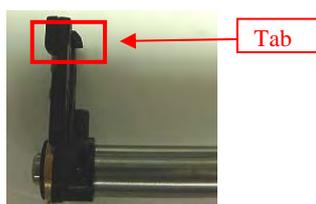


Fig.6.28-6 (no spring)

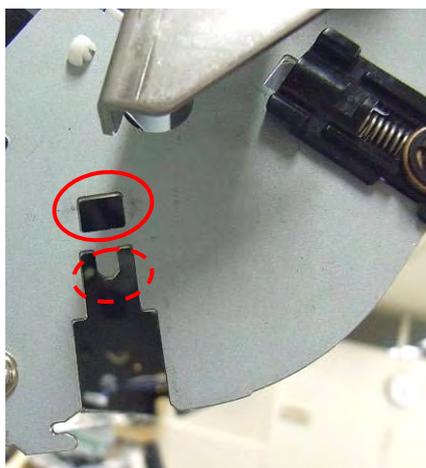


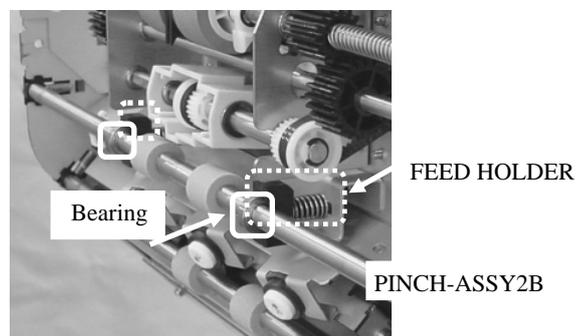
Fig.6.28-7



Fig.6.28-8 (Roller installed)

<Note on installation at Pinch roller #1>

- Insert two bearings (solid squares in the right photo) for the PINCH-ASSY2B into two holes on the FEED HOLDERS (dotted squares in the right photo) on the separator unit.
- Do not touch two FEED HOLDERS (dotted squares in the right photo). They are easily to come off and fall off.
- The spring on the Pinch roller bracket is easy to pop. Insert the PINCH-ASSY2B softly.



- (15) In the same way, install the PINCH-ASSY1B (Refer to Section 8.59) to where the Pinch rollers #2, #6, #7, and #8 were installed.
- (16) In the same way, install the PINCH-ASSY4B (Refer to Section 8.59) to where the Pinch rollers #3, #4, and #5 were installed.
- (17) In the same way, install the PINCH-ASSY3B (Refer to Section 8.59) to where the Pinch roller #9 was installed.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	209/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

<Installing parts>

- (18) Install the REV-GUIDE-4 by inserting the protrusions (solid circles below) into the holes (dotted circles below) of the REV-GUIDE-4.

Make sure all of the four protrusions are secured.



- (19) Bumping the areas of REV-GUIDE-4 (circles in the photo below) into the metal plate at the scanner side, screw them. (Refer to the details on the next page.)



Fig.6.28-9

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 210/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Details

Bumping the Hem A and Hem B of the EXIT-GUIDE-ASSY (Fig.6.28-10) into the A1 and B1 of the metal plate at the scanner side (Fig.6.28-12) respectively, fix them with a screw.

Bump Hem A into A1 and Hem B into B1. (Refer to "Finish" photo.)

(Both A and B in Fig.6.28-9)

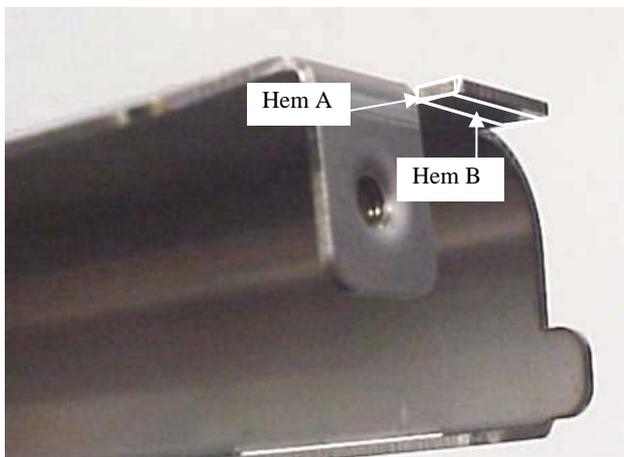


Fig.6.28-10 (Enlarged Fig.6.28-9)

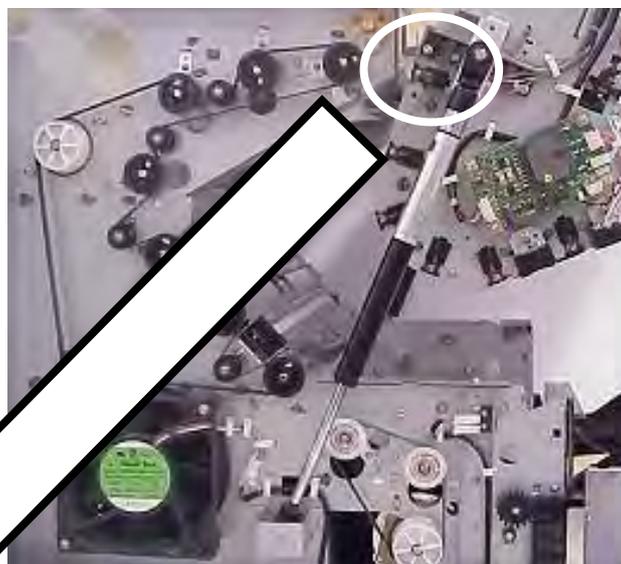


Fig.6.28-11

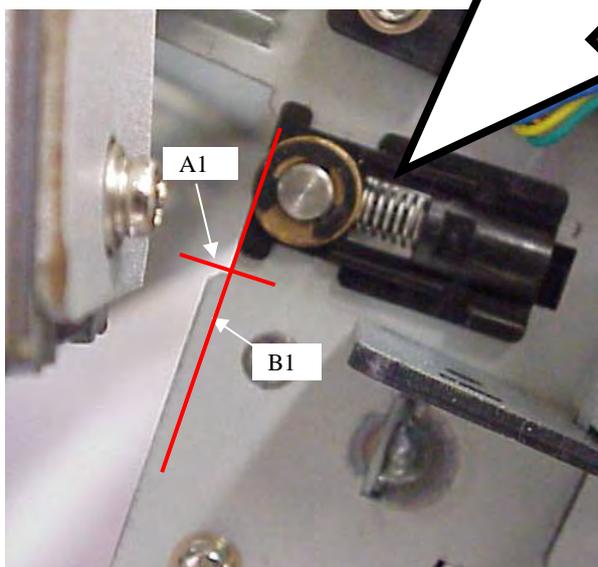
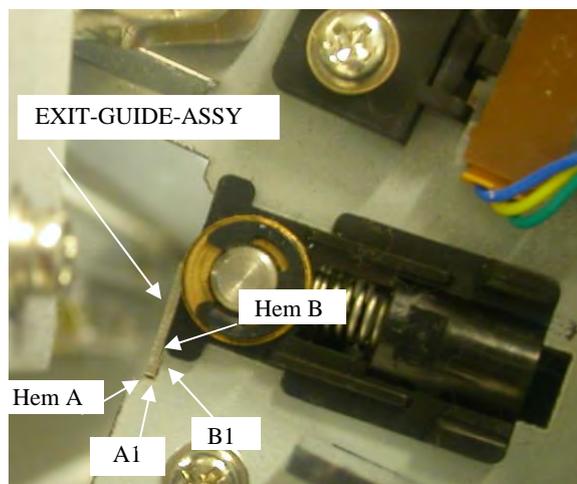


Fig.6.28-12



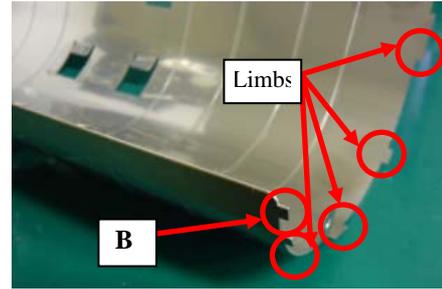
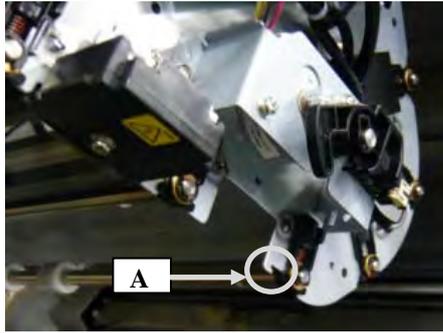
Finish

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	211/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(19) Install the REV-GUIDE3-ASSY in the reverse order of step (9).

Notes:

- Insert the protrusion B (lower right photo) of REV-GUIDE3-ASSY into the hole A (lower left photo).



- Insert both edges of the REV-GUIDE3-ASSY into the Upper Unit frame, bump the limbs of the REV-GUIDE3-ASSY into the frame, and screw them by making sure there is no gap.



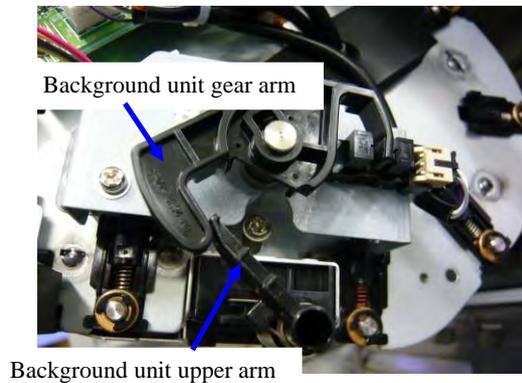
Bump into the frame.

Shall be inserted into the spring.

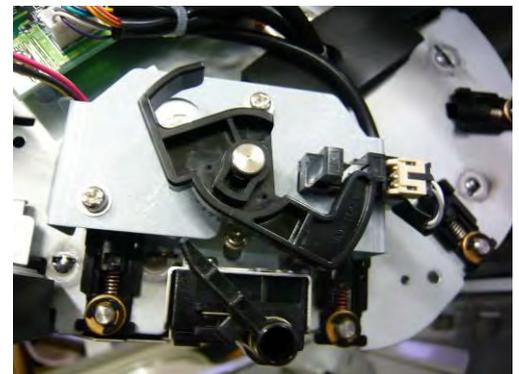
(20) Install the Background Unit Upper in the reverse order of step (8).

Note: Insert the BW unit gear arm as shown in the photo below (“OK” photo).

[OK]



[NG]



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 212/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	212/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(21) Install the REV-GUIDE-2 in the reverse order of step (6).

Note: Bumping the Limb A and Limb B (Fig. 6.28-15) into A1 and B1 (Fig.6.28-16), screw the REV-GUIDE-2 without gap as shown in Fig.6.28-18. Screw the other side as well.

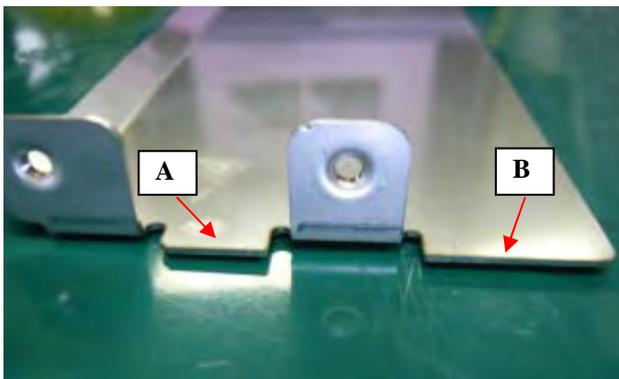


Fig.6.28-15

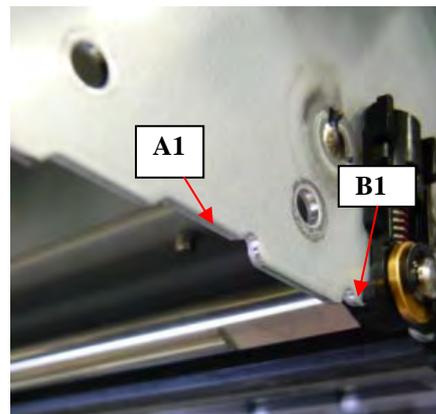


Fig.6.28-16

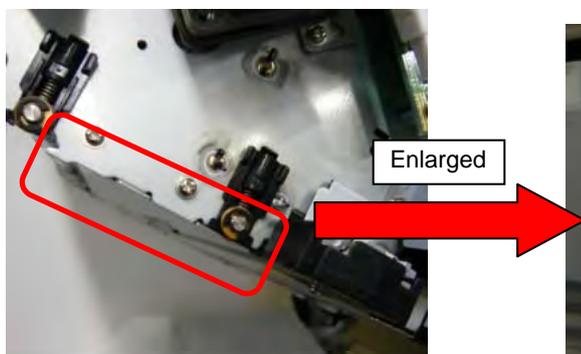


Fig. 6.28-17

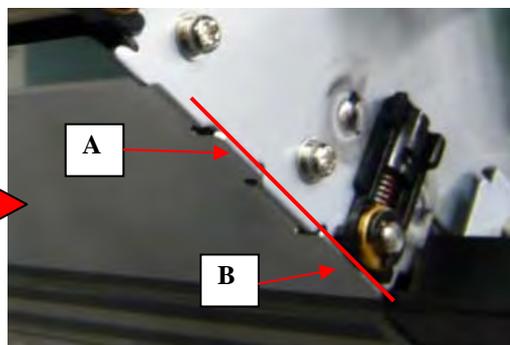


Fig.6.28-18

<Replacing the UPPER-GUIDE1B>

(22) On the UPPER-GUIDE1B, rotate the roller cover downward.

(23) Detach the connection (circle in the photo below) of the roller cover and Upper unit cover.

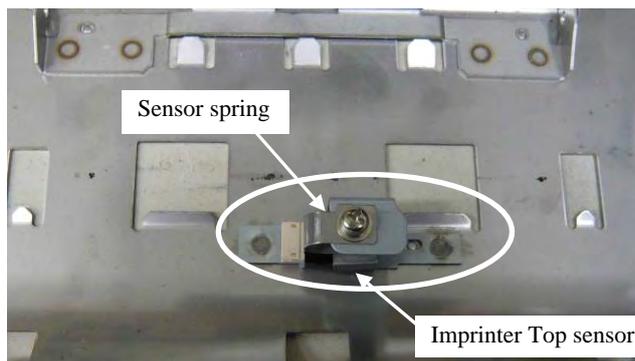


(24) Install the removed roller cover into the UPPER-GUIDE1B enclosed with the kit.

Reference: The UPPER-GUIDE1B enclosed with the kit has a larger hole than that on the Pinch roller before replaced.

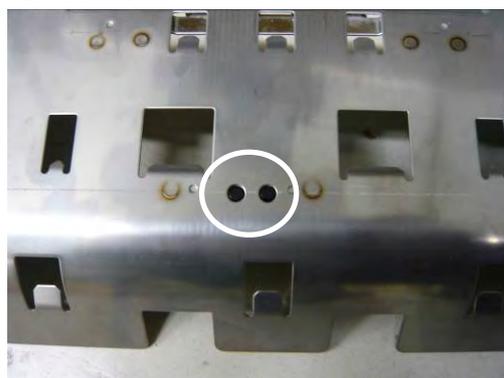
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	213/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

- (25) Remove the screw (circle below) at the back of the UPPER-GUIDE1B, and then remove the Imprinter Top sensor/Sensor spring.



- (26) Install the removed Imprinter top sensor/Sensor spring into the new UPPER-GUIDE1B.

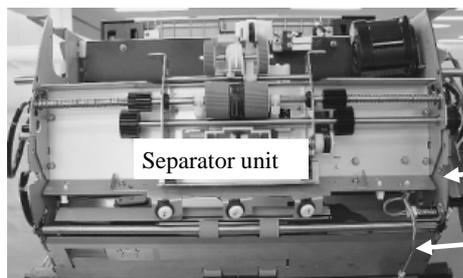
Note: Imprinter Top sensor shall be inserted into the guide holes (circle below).



- (27) Install the new UPPER-GUIDE1B by being careful with the following points.

Notes:

- Imprinter Top sensor cable shall be routed directly underneath so that it is not pinched between the Separator unit and Upper unit frame.



Upper unit frame

Route Imprinter Top sensor cable directly underneath.

- Connect the connector to the Imprinter top sensor at the back of the UPPER-GUIDE1B, and hook the cable on the clamp. If the cable is not hooked, it may touch the roller and may be damaged.
- Insert lower end of the UPPER-GUIDE1B into the groove (square below) of the Upper unit frame.



- Bump the both right and left edges of the UPPER-GUIDE1B into the Upper unit frame, and then screw them by making sure there is no gap.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 214/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(28) Install the covers by referring to step (28) of Section 6.27.

(29) Update the scanner firmware with the firmware update tool. Refer to Section 7.5 for the update procedure.

Note: If the firmware versions satisfy those in the table below, firmware update is unnecessary.

Firmware type	Firmware version	Version (Maintenance mode #6)
SDC	0N00 or later	1400 or later
MDC	0K00 or later	1100 or later
PUC	0E00 or later	0500 or later

(30) Perform the following adjustments, reset the counter, and confirm adjustment completion.

- (a) Sub-scanning magnification adjustment (Section 7.1.10)
- (b) Offset adjustment (Section 7.1.4)
- (c) Feed roller counter reset (Section 7.1.6)
- (d) Confirmation of Feed roller adjustment completion (Section 7.1.7)

(31) Check the “Fujitsu Scanner Control Center” version installed in the PC. If the version is V2.4.3 or earlier, update the driver.

* To see the “Fujitsu Scanner Control Center” version, right-click the [FUJITSU Scanner Control Center] icon on the Notification Area at lower right of the PC screen (task bar), and select “About.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	215/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 7 Adjustment/Settings

7.1 Maintenance Mode (Offline test)

The scanner supports a built-in Maintenance mode that allows service providers to check the scanner performance and settings without connecting your PC. This section gives the description of Maintenance mode.

Note on Maintenance Mode

13

1: Before performing the sub-scanning magnification adjustment, Offset adjustment, or White level adjustment, set the user's inherent adjustment value to the default value.

The adjustment is not performed properly if the offset adjustment value and magnification adjustment value are set individually.

[Default value setting method]

Check the following items on the Software Operation Panel. If you found any individual setting values, modify them before adjustment.

Software Operation Panel → Device Setting → Offset

- Offset setting: "0" for ADF (front) Main/Sub-scanning and ADF (back) Main/Sub-scanning

- Vertical magnification adjustment: "0.0" % for ADF

Software Operation Panel → Device Setting 2 → Page edge filler

- "0" for Top/Bottom/Right/Left

*** After changing the setting values above, write into EEPROM to reflect the setting.**

2: If the power is turned off by the Power button on the operator panel during adjustment in the Maintenance mode, inappropriate setting value may remain in the scanner, which results in some symptoms such as "darker image". To avoid them, read the following two instructions.

- When activating the Maintenance mode or executing the tests, be sure to follow the procedure manual. Especially, confirm that the Pre-Imprinter cover is closed before executing the Maintenance mode and tests.
- When you have to exit the Maintenance mode (offline test) in mid-flow, use the Main power switch at the rear side of the scanner to turn off the power. Do not use the power button on the operator panel.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	216/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

7.1.1 Activating Maintenance Mode and Mode Types

(1) How to activate Maintenance mode

- (1) Make sure the scanner is OFF.
- (2) Make sure the Hopper is open.
- (3) Make sure the Pick roller unit is not in the Manual Feed position. (Refer to Section 3.1.12)
- (4) Open the Pre-Imprinter cover.
- (5) Using the power button on the Operator panel, turn the scanner ON while holding down the **Scan** button. Keep holding the **Scan** button down until Screen T04 is displayed. This will put the scanner into Maintenance mode. While in Maintenance mode, the scanner interface is off-line.

Screen T01 appears during activation of Maintenance mode.

Screen T01

Function No. Display	Power LED	Scanner status
	ON	Initial processing in Maintenance mode

When the Maintenance mode is activated normally after the initial processing, the following display appears.

Screen T04

Function No. Display	Power LED	Scanner status
	ON	Maintenance mode #1 selected

12 **[Important]**(6) Close the Pre-Imprinter cover. The power of the scanner is turned ON.

(2) Test/adjustment items of the Maintenance mode

The following lists test/adjustment items #1 ~ #8 that are supported by the scanner.

Mode #1: Paper feeding test and Sensor test

Mode #2: Sub-scanning magnification adjustment

Mode #3: Offset adjustment

Mode #4: White level adjustment

Mode #5: Consumables counter display and reset

Mode #6: Miscellaneous information display

Mode #7: EEPROM data restore

Mode #8: Ultrasonic sensor adjustment

Mode #9: Sub-scanning magnification adjustment (displayed depending on the scanner version) **13**

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE	217/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION					
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai			

(3) How to change the Maintenance mode

To change between Maintenance modes (#1 ~ #8), press the **Function** button on the operator panel. The display changes as follows. Mode #1 is the default.

Maintenance mode No.	Display			Maintenance mode	Related section
	Function No. Display	Power LED	Status transition		
#1		ON		Paper feeding test / Background changeover test / Sensor test	7.1.2
#2		ON		Sub-scanning magnification adjustment	7.1.3
#3		ON		Offset adjustment	7.1.4
#4		ON		White level adjustment	7.1.5
#5		ON		Consumables counter display and reset	7.1.6
#6		ON		Miscellaneous information display	7.1.7
#7		ON		EEPROM data restore	7.1.8
#8		ON		Ultrasonic sensor adjustment	7.1.9
#9		ON		Sub-scanning magnification adjustment (displayed depending on the scanner version) ¹³	7.1.10

(4) How to initiate the desired Maintenance mode

Select a Maintenance mode and press the **Scan** button. The scanner activates the selected Maintenance mode.

¹² **Note:** If the Maintenance mode is not activated properly (no reply), use the Main power switch at the rear of the scanner to turn off the power, and restart the Maintenance mode.

(5) How to exit the Maintenance mode

¹² When exiting the Maintenance mode, turn off the scanner power by switching off the Main power switch at the rear of the scanner.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	218/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

7.1.2 Maintenance Mode #1: Paper feeding test/Background changeover test/Sensor test

This mode tests the continuous scanning operation (at the specified speed), test the Background changeover, and also checks the sensor status (ON/OFF) for each of the ADF sensors.

[Starting Test]

- (1) Maintenance mode #1 is ready to be selected when screen T04  is displayed. Press the **Scan** button. The selection screen for scanning speed/Test mode appears. "0" is displayed on the Function No. Display. The number can be changed to adjust the scanning resolution of the feed test, or to access the Background changeover or Sensor tests as follows:

Function No. Display	Scanning speed/test mode	Remarks
0	200 dpi	Default
1	240 dpi	
2	300 dpi	
3	400 dpi	
4	600 dpi	
5	(Reserved)	
6	Background changeover test	
7	Sensor test 1	
8	Sensor test 2	

<Paper feeding test>

- (2) The scanning speed/test mode is changed by pressing the **Function** button. To test the continuous feeding operation, select the desired scanning speed (this varies depending on the scanning resolution) from 0 ~ 4. The lower the resolution, the faster the scanning speed.
- (3) Place paper on the Hopper.
- Note: If no Imprinters are installed on the scanner, when pressing the **Scan** button with paper on the Hopper (Empty sensor ON), scanning starts.

* If the **Scan** button is pressed when one of the Imprinter is installed, the setting whether imprinting is performed or not is displayed as below. Pressing the **Function** button can switch this setting.

Screen T11

Function No. Display	Scanner status
	Not printing (default) Displays "-" without blinking.

Screen T12

Function No. Display	Scanner status
	Printing. Displays "P" without blinking.

Function button: Switches these settings.
(Screen T11 ⇄ Screen T12)

Send to button: Terminates this mode and returns to screen T04.

When "Printing" is selected, if both the Pre-Imprinter and Post-Imprinter are installed, specify which Imprinter to imprint as below.

- Pre-Imprinter (fi-590PRF): "o" (lower) 

- Post-Imprinter (fi-590PRB): "o" (upper) 

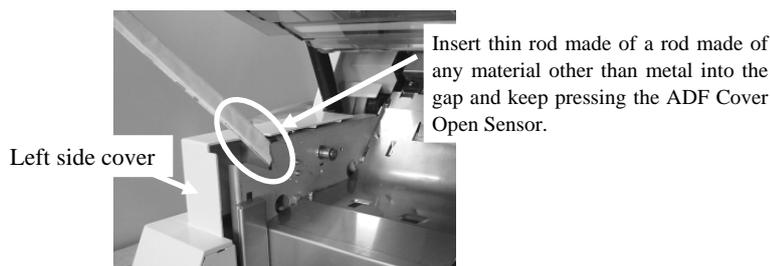
If the **Scan** button is pressed while the paper is set on the Hopper (Empty sensor: ON), scanning begins.

If "printing" has been selected, the patterns in Section 9.2.4 are printed out.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	219/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

<Background changeover test>

Select "6" on the Function No. display, open the ADF, and turn ON the scanner while pressing the Cover Open Sensor with a rod made of any material other than metal.



Press the **Scan** button to begin the Background changeover test.

<Sensor Test 1>

By pressing the **Scan** button while "7" is displayed on the Function No. Display, the scanner enters Sensor test mode 1. The following table shows how the sensor status is displayed while the sensor test 1 is in progress.

Screen T13

Function No. Display	Description	Display
	1: indicates READ TOP sensor (RED_TP_SE) status Installed on the Background Unit, Lower (Roller 3). (Sensor for SF3, Prism type)	Illuminates when the sensor is ON (Paper is detected)
	2: indicates Hopper Empty sensor status Located at the back of the Hopper Channel. (Sensor, Horseshoe type)	Illuminates when the sensor is ON (Paper is detected)
	3: indicates REJ sensor (REJ_SE) status Installed on the Base unit guide 2 (Roller 6). (Sensor for SF3, Prism type)	Illuminates when the sensor is ON (Paper is detected)
	4: indicates Manual feed sensor status Installed at the back of the Separator unit when looking from the front of the scanner. (Sensor, Horseshoe-shaped)	Illuminates when the sensor is ON (Shielded)
	5: indicates Pick sensor (PICK_SE) status Installed at the center of the Sensor PCA. (Reflective type)	Illuminates when the sensor is ON (Paper is detected)
	6: indicates EXIT sensor (EXT_TP_SE) status Installed on the Upper unit guide 4 (Roller 9). (Sensor for JAM, Reflective type)	Illuminates when the sensor is ON (Paper is detected)
	7: indicates Imprinter TOP sensor (IMP_TP_SE) status Installed on the Base unit guide 1 (Roller 1). (Sensor for SF3, Prism type)	Illuminates when the sensor is ON (Paper is detected)

Note 1) Perform this test by opening / closing the ADF cover. If the ADF Cover is opened, the sensor output is reduced, which is the same status as "paper is detected", so that the Display indicates "ON". If the ADF Cover is closed, the Display turns to "OFF (no paper)".

Note 2) Refer to the Section 4.1 for the sensor positions.

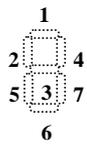
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL				
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	220/327		
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION						
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada			APPR.		T.Anzai		

<Sensor Test 2>

By pressing the **Scan** button while “8” is displayed on the Function No. Display, the scanner enters Sensor test mode 2.

The following table shows how the sensor status is displayed while the sensor test 2 is in progress.

Screen T14

Function No. Display	Description	Display
	1: indicates Cover open sensor status Installed at left side of the Base unit and front side of the Upper unit (MICROSWITCH)	Illuminates when the ADF cover or Imprinter cover is open.
	2: indicates Skew sensor L1 (SKEW_L1) status Installed on the Sensor PCA. (Reflective type)	Illuminates when the sensor is ON. (Shielded)
	3: indicates Skew sensor L3 (SKEW_L3) status	Illuminates when the sensor is ON. (Shielded)
	4: indicates Skew sensor R1 (SKEW_R1) status	Illuminates when the sensor is ON. (Shielded)
	5: indicates Skew sensor L2 (SKEW_L2) status	Illuminates when the sensor is ON. (Shielded)
	6: indicates Skew sensor R3 (SKEW_R3) status	Illuminates when the sensor is ON. (Shielded)
	7: indicates Skew sensor R2 (SKEW_R2) status	Illuminates when the sensor is ON. (Shielded)

[Exit Test]

Press the **Send to** button to exit each Test. Screen T04 is displayed on the Function No. Display. The test also terminates when no paper remains on the Hopper after the paper feeding test.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	221/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

7.1.3 Maintenance Mode #2: Sub-scanning magnification adjustment

In this mode, the magnification correction values for sub-scanning are automatically calculated to satisfy the following adjustment value.

Adjustment value: Within $\pm 1.0\%$ (Without stopping and starting during scanning)

NOTICE

Before this adjustment, obtain the Test sheet described late in this section. This is a white A3 sized sheet of paper.

Notes on Sub-scanning magnification adjustment

13

1: Before performing the sub-scanning magnification adjustment, set the user's inherent adjustment value to the default value.

The adjustment is not performed properly if the offset adjustment value and magnification adjustment value are set individually.

[Default value setting method]

Check the following items on the Software Operation Panel. If you found any individual setting values, modify them before adjustment.

Software Operation Panel → Device Setting → Offset

- Offset setting: "0" for ADF (front) Main/Sub-scanning and ADF (back) Main/Sub-scanning

- Vertical magnification adjustment: "0.0" % for ADF

Software Operation Panel → Device Setting 2 → Page edge filler

- "0" for Top/Bottom/Right/Left

*** After changing the setting values above, write into EEPROM to reflect the setting.**

[Starting Test]

(1) From screen T04, press the **Function** button to select  (Maintenance mode #2) and press the **Scan** button. "0" is displayed on the Function No. Display.

Function No. Display	Offset to be adjusted	Remarks
0	ADF sub-scanning magnification adjustment	Default Prepare the Adjustment Test sheet described in figure 7.1.3.

(2) Set a white A3 sized sheet of paper (Figure 7.1.3) on the Hopper in Portrait orientation, and adjust the side guides to the width of the sheet.

Press the **Scan** button to begin the adjustment operation.

If  is displayed, the sub-scanning magnification is adjustment has been successful. Go to step.3.  is displayed, the sub-scanning magnification adjustment has failed. Go to step 4.

[How to abort the Test]

Press the **Send to** button during the adjustment operation. The operation stops and the Maintenance mode selection screen (T04) appears.

12 **13**

Note: Do not use the power button on the operator panel to stop the operation. Inappropriate setting value may remain in the scanner.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	222/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(3) When the sub-scanning magnification adjustment is completed successfully

If the sub-scanning magnification adjustment is completed successfully, Screen T21 is displayed on the Function No. Display. To save the adjustment result, press the **Function** button. If not, press the **Send to** button.

Screen T21

Function No. Display	Scanner status	Available buttons
	Displays "o" (lower half) without blinking. The adjustment has been successful.	Function button: Displays screen T22. Saves the magnification correction value into EEPROM. Send to button: Terminates this mode and returns to screen T04.

After the **Function** button is pressed, Screen T22 is displayed. To save the adjustment result, press the **Scan** and the **Function** buttons simultaneously. The saving operation begins. Screen T23 is displayed during this operation. Screen T24 is displayed when saving is completed.

Screen T22

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Confirming whether the correction value is saved into EEPROM.	Scan + Function buttons: Begin saving the magnification correction value into EEPROM. During the saving operation, screen T23 is displayed. Screen T24 is displayed when saving is completed. Send to button: Terminates this mode and returns to screen T04.

Screen T23

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. Correction value is being saved into EEPROM.	All buttons are disabled.

Screen T24

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. The value has been saved successfully.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	223/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(4) When the sub-scanning magnification adjustment fails

When the sub-scanning adjustment fails, Screen T25 appears. Press the **Function** button to see what error has occurred. A screen similar to Screen T26 is displayed. After checking the error, press the **Send to** button to return to Screen T04.

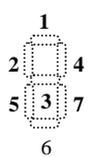
Screen T25

Function No. Display	Scanner status	Available buttons
	Displays "c" without blinking. The adjustment has failed.	Function button: Displays error information (screen T26) Send to button: Terminates this mode and returns to screen T04.

 **NOTICE**

The most common reason for adjustment failure is placing the Adjustment Test sheet improperly on the Hopper. Place the Adjustment Test sheet properly on the Hopper and run the magnification adjustment again.

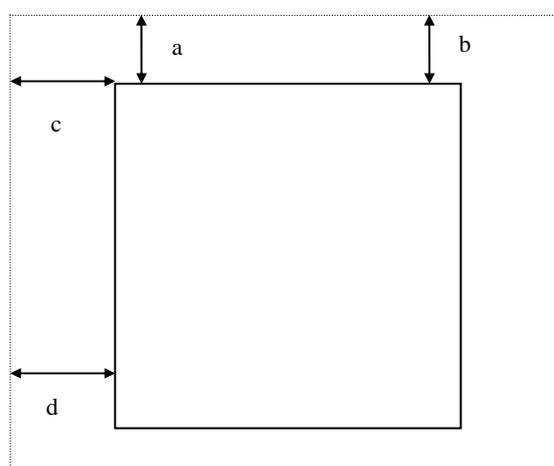
Screen T26

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: Cannot detect the leading edge of the document (incapable of Black detection) (Image is shifted upward too much)	Conduct necessary operation by referring to step (2) and later in Section 5.3.7.
	2: Cannot detect the left edge of the document (incapable of Black detection) (Image is shifted to left too much.)	
	3: Cannot detect the leading edge of the document (incapable of White detection) (Image is shifted downward too much.)	
	5: Cannot detect the left edge of the document (incapable of White detection) (Image is shifted to right too much.)	
	4: Excessive skew A	
	7: Excessive skew B	

Skew A and B are calculated by the following expression.

Skew A = a - b

Skew B = c - d



<Available buttons on screen T26>

Send to button: Terminates this mode and returns to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 224/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

[Test sheet]

Use the Adjustment Test sheet for magnification and offset adjustment that meets the following specification (A3 copy paper is allowed).

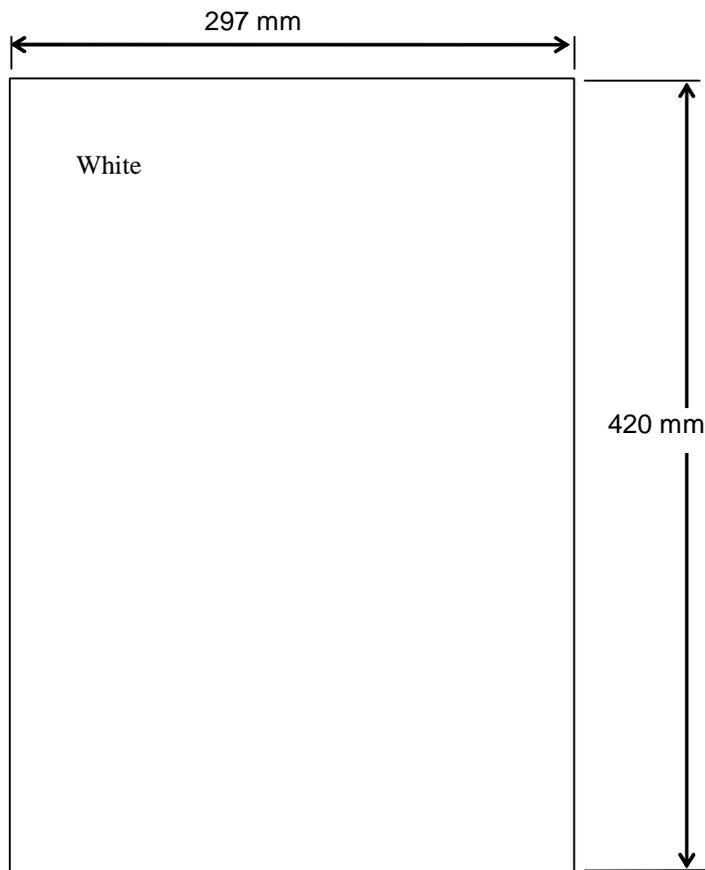


Figure 7.1.3 Magnification / Offset Adjustment Test Sheet

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	225/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

7.1.4 Maintenance Mode #3: Offset adjustment

In this mode, the offset correction values for main/sub-scanning are automatically adjusted to satisfy the following offset values:

<Target offset value>

Main scanning: The largest offset of A6 or larger size of document shall be: ± 24 dot (@600dpi)

Sub-scanning: The largest offset of A6 or larger size of document shall be: ± 33 dot (@600dpi)

NOTICE

- The value above is the target value of the offset adjustment. Image specification is as follows:
 - Main scanning: Smaller offset of top or bottom of left edge shall be 0 to 1.5mm.
 - Sub-scanning: Smaller offset of left or right of leading edge shall be 0 to 2.0mm.
- Before this adjustment, obtain the Adjustment Test sheet described in the figure 7.1.3. This is a white A3 sized sheet of paper.

Notes on Offset adjustment 13

1: Before performing the Offset adjustment, set the user's inherent adjustment value to the default value. The adjustment is not performed properly if the offset adjustment value and magnification adjustment value are set individually.

[Default value setting method]

Check the following items on the Software Operation Panel. If you found any individual setting values, modify them before adjustment.

Software Operation Panel → Device Setting → Offset

- Offset setting: "0" for ADF (front) Main/Sub-scanning and ADF (back) Main/Sub-scanning

- Vertical magnification adjustment: "0.0" % for ADF

Software Operation Panel → Device Setting 2 → Page edge filler

- "0" for Top/Bottom/Right/Left

*** After changing the setting values above, write into EEPROM to reflect the setting.**

[Starting Test]

- From screen T04, press the **Function** button until  (Maintenance mode #3) is displayed, and press the **Scan** button. "0" is displayed on the Function No. Display. The number is changed to select front side or backside adjustment.

Function No. Display	Offset to be adjusted	Remarks
0	Front side	Default Prepare the Adjustment Test sheet described in figure 7.1.3.
1	Backside	Prepare the Adjustment Test sheet described in figure 7.1.3.

- Change the selection by pressing the **Function** button.
- Set a white A3 sized sheet of paper (Figure 7.1.3) on the Hopper in Portrait orientation, and adjust the side guide to the width of the sheet.

Press the **Scan** button to begin the adjustment operation.

If  is displayed, the offset adjustment has been successful. Go to step 4. If  is displayed, the offset adjustment has failed. Go to step.5.

[How to abort]

Press the **Send to** button during the adjustment operation. The operation stops and the Maintenance mode selection screen (T04) appears.

12 **13**

Note: Do not use the power button on the operator panel to stop the operation. Inappropriate setting value may remain in the scanner.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	226/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(4) When the offset adjustment is completed successfully

If the offset adjustment is completed successfully, Screen T31 appears. To save the adjustment result, press the **Function** button. If not, press the **Send to** button.

Screen T31

Function No. Display	Scanner status	Available buttons
	Displays "o" (lower half) without blinking. The adjustment has been successful.	Function button: Displays screen T32 and saving the offset correction value in EEPROM is available. Send to button: Terminates this mode and returns to screen T04.

After the **Function** button is pressed, Screen T32 is displayed. To save the adjustment result, press the **Scan** and the **Function** buttons simultaneously. The saving operation begins. Screen T33 is displayed during this operation. Screen T34 is displayed when saving is completed.

Screen T32

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Confirming whether the correction value is saved into EEPROM.	Scan + Function buttons: Begin writing the offset correction value into EEPROM. During the saving operation, screen T33 is displayed. Screen T34 is displayed when saving is complete. Send to button: Terminates this mode and returns to screen T04.

Screen T33

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. Correction value is being saved into EEPROM.	All buttons are disabled.

Screen T34

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. The value has been saved successfully.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 227/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(5) When the offset adjustment fails

When the offset adjustment fails, Screen T35 is displayed. Press the **Function** button to see what error has occurred. Screen T36 is displayed. After checking the error, press the **Send to** button to return to Screen T04.

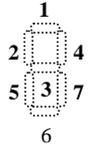
Screen T35

Function No. Display	Scanner status	Available buttons
	Displays "c" without blinking. The adjustment has failed.	Function button: Displays error information (screen T36) Send to button: Terminates this mode and returns to screen T04.

NOTICE

The most common reason for adjustment failure is placing the Adjustment Test sheet improperly on the Hopper. Place the Adjustment Test sheet properly on the Hopper and run the offset adjustment again.

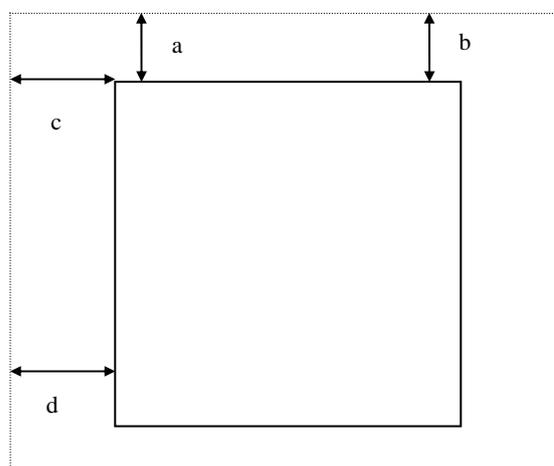
Screen T36

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: Cannot detect the leading edge of the document (incapable of Black detection) (Image is shifted upward too much.)	Conduct necessary operation by referring to step (3) and later in Section 5.3.6.
	2: Cannot detect the left edge of the document (incapable of Black detection) (Image is shifted to left too much.)	
	3: Cannot detect the leading edge of the document (incapable of White detection) (Image is shifted downward too much.)	
	5: Cannot detect the left edge of the document (incapable of White detection) (Image is shifted to right too much.)	
	4: Excessive skew A	
	7: Excessive skew B	

Skew A and B are calculated by the following expression.

Skew A = a - b

Skew B = c - d



<Available buttons on screen T36>

Send to button: Terminates this mode and returns to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 228/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				T.Anzai

7.1.5 Maintenance Mode #4: White level adjustment

In this mode, the white level correction value for the ADF is automatically adjusted.

NOTICE

Before this adjustment, obtain the white level adjustment sheet (A4 coated paper) described in section 6.4.

Notes on White level adjustment

13

1: Before performing the White level adjustment, set the user's inherent adjustment value to the default value. The adjustment is not performed properly if the offset adjustment value and magnification adjustment value are set individually.

[Default value setting method]

Check the following items on the Software Operation Panel. If you found any individual setting values, modify them before adjustment.

Software Operation Panel → Device Setting → Offset

- Offset setting: "0" for ADF (front) Main/Sub-scanning and ADF (back) Main/Sub-scanning

- Vertical magnification adjustment: "0.0" % for ADF

Software Operation Panel → Device Setting 2 → Page edge filler

- "0" for Top/Bottom/Right/Left

*** After changing the setting values above, write into EEPROM to reflect the setting.**

[Starting Test]

- (1) From screen T04, press the **Function** button until  (Maintenance mode #4) is displayed, and press the **Scan** button. "0" is displayed on the Function No. Display. The number can be changed to adjust the front or backside white level to be adjusted.

Function No. Display	White level to be adjusted	Remarks
0	ADF front	Default Use the white level adjustment sheet described in Section 6.4.
1	ADF back	Use the white level adjustment sheet described in Section 6.4.

- (2) Change the selection by pressing the **Function** button.
- (3) Place the white level adjustment sheet on the Hopper in landscape orientation (in the direction longer edge goes into the ADF) and adjust the side guides to the width of the adjustment sheet.
Press the **Scan** button to begin the adjustment operation.

NOTICE

The adjustment starts approx. 10 seconds after pressing the **Scan** button.
Use the white level adjustment sheet 5 times.

Screen T41

Function No. Display	Scanner status	Available buttons
	Blinks during white level adjustment.	All buttons are disabled.

- (4) When the white level adjustment sheet is ejected, wait until the hopper comes to the lowest position, and then place it on the Hopper again within 15 seconds. 
The Function Number Display keeps flashing during re-setting the sheet on the Hopper.
When the sheet is set, scanning operation (adjustment operation) automatically starts.
Repeat this operation 4 times.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	229/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

[12] Note: If paper is set on the hopper before the hopper has come to the lowest position completely, the scanner cannot feed the paper and the adjustment abends.

If  is displayed, the white level adjustment has been successful. Go to step 5. If  is displayed, the white level adjustment has failed. Go to step 6.

NOTICE

After reading the white level adjustment sheet, it takes approx. 10 seconds for the scanner to calculate the level adjustment.

[How to abort]

Press the **Send to** button during the adjustment operation. The operation stops and the Maintenance mode selection screen (T04) appears.

[12] [13]

Note: Do not use the power button on the operator panel to stop the operation. Inappropriate setting value may remain in the scanner.

(5) When the white level adjustment is completed successfully

If the white level adjustment is completed successfully, Screen T42 is displayed. To save the adjustment result, press the **Function** button. If not, press the **Send to** button.

Screen T42

Function No. Display	Scanner status	Available buttons
	Displays "o" (lower half) without blinking. The adjustment has been successful.	Function button: Displays screen T42 and the saving of the correction value in EEPROM is available. Send to button: Terminates this mode and returns to screen T04.

After the **Function** button is pressed, Screen T43 is displayed. To save the adjustment result, press the **Scan** and the **Function** buttons simultaneously. The saving operation begins. Screen T44 is displayed during this operation. Screen T45 is displayed when saving is complete.

Screen T43

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Confirming whether the correction value is written to EEPROM.	Scan + Function buttons: Begin saving the white level correction value to EEPROM. During the saving operation, screen T44 displayed. Screen T45 is displayed when saving is complete. Send to button: Terminates this mode and returns to screen T04.

Screen T44

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. Correction value is being saved into EEPROM.	All buttons are disabled.

Screen T45

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. The value has been saved successfully.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 230/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

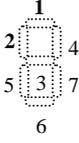
(6) When the white level adjustment fails

When the white level adjustment fails, Screen T46 is displayed. Press the **Function** button to see what error has occurred. Screen T47 is displayed. After checking the error, press the **Send to** button to return to Screen T04.

Screen T46

Function No. Display	Scanner status	Available buttons
	Displays "c" without blinking. The adjustment has failed.	Function button: Displays error information (screen T47) Send to button: Terminates this mode and returns to screen T04.

Screen T47

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: Media error The test sheet may not be the specified one. Please confirm the test sheet. 2: No paper Adjustment started, but the white level adjustment sheet was not set within the specified period of time. Restart from the beginning.	The Lamps, CCD Units may be defective. Replace the defective parts.

<Available buttons at screen T47>

Send to button: Terminates this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 231/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

7.1.6 Maintenance Mode #5: Consumables counter display and Reset

In this mode, the following consumable counters can be displayed and reset:

- Pick counter (Abrasion counter for the Pick roller)
- Brake roller counter (Abrasion counter for the Brake roller)
- Separator roller counter (Abrasion counter for the Separator roller)
- Pad counter (Abrasion counter for the Pad)
- Remaining ink (with the Imprinter installed)
- Feed roller counter (Abrasion counter for the Feed rollers)

[How to operate]

(1) From screen T04, press the **Function** button until (Maintenance mode #5) is displayed, and press the **Scan** button. "0" is displayed on the Function No. Display. The number can be changed to access the different counters.

Function No. Display	Display	Remarks
0	Pick counter (Abrasion counter for Pick roller)	Default
1	Brake roller counter (Abrasion counter for Brake roller)	
2	Separator roller counter (Abrasion counter for Separator roller)	
3	Pad counter (Abrasion counter for Pad)	
4	Remaining ink (Pre-Imprinter)	When Imprinters are installed.
5	Remaining ink (Post-Imprinter)	
6	Feed roller counter (Abrasion counter for Feed rollers)	Displayed depending on the scanner version. 13

(2) Press the **Function** button until the desired counter is displayed.

(3) The counter is displayed as follows when pressing the **Scan** button.

Counter	Display
Pick counter	The counter displays 8 digits in total, 1 number at a time (1 blink), from left digit to right digit. (If the counter has not reached 8 digits yet, 0 is added to leading blank digits.) The symbol "-" is displayed before the first number, indicating the counter display begins. The counter increases in increments of 10. eg. When the counter is "16,245", "-00016240" is displayed in the following order: "- → "0" → "0" → "0" → "1" → "6" → "2" → "4" → "0"
Brake roller counter	See "Pick counter" for display.
Separator roller counter	See "Pick counter" for display.
Pad counter	See "Pick counter" for display.
Remaining ink	The counter displays 3 digits in total between 100 and 0 (percentage), following the symbol "-". 100 (%) is the initial value. As consumed amount of ink differs depending on environmental condition, this is approximate number. To display the remaining ink amount of the Pre-Imprinter, "o" (lower half) is displayed. To show the remaining ink amount of the Post-Imprinter, "o" (upper half) is displayed in the beginning. Ex.1) When 58% of the Pre-Imprinter's ink remains: "o" (lower half) → "0" → "5" → "8" Ex.1) When 58% of the Post-Imprinter's ink remains: "o" (upper half) → "0" → "5" → "8" If no imprinter is connected, "-" is displayed. The display changes every 0.5 second.
Feed roller counter	See "Pick counter" for display. This counter appears depending on the scanner version. 13 "- is displayed on the scanner if RUBBER-ROLLER-K is not installed.

(4) Press the **Send to** button to terminate the selected counter display. Maintenance mode #5  is displayed.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	232/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

[How to reset the counters]

The following buttons are available during the counter display.

Send to button: Terminates this mode and returns to screen T04.

- (1) From screen T04, press the **Function** button until  (Maintenance mode #5) is displayed and press the **Scan** button. "0" is displayed on the Function No. Display. The number can be changed to access the different counters.

Function No. Display	Display	Remarks
0	Pick counter (Abrasion counter for Pick roller)	Default
1	Brake roller counter (Abrasion counter for Brake roller)	
2	Separator roller counter (Abrasion counter for Separator roller)	
3	Pad counter (Abrasion counter for Pad)	
4	Remaining ink (Pre-Imprinter)	When Imprinters are installed.
5	Remaining ink (Post-Imprinter)	
6	Feed roller counter (Abrasion counter for Feed roller)	Displayed depending on the scanner version. 13

- (2) Press the **Function** button until the counter to be reset is displayed.
- (3) Press the **Function** and **Scan** buttons at the same time momentarily and let go of the buttons again. Screen T51 is displayed on the Function No. Display.
- (4) Press the **Function** and **Scan** buttons at the same time momentarily and let go of the buttons again. The reset operation begins. Screen T52 is displayed during this operation. T45 is displayed when the counter is reset.

Screen T51

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Counter is ready to be reset.	Scan + Function buttons: Begins resetting the displayed counter value to 0. During the reset operation, screen T52 displayed. Screen T53 is displayed when the counter is reset. Send to button: Terminates this mode and returns to screen T04.

Screen T52

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. The counter is being reset.	All buttons are disabled.

Screen T53

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. Counter reset is complete.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	233/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Information	Description												
Confirmation of the Feed roller adjustment completion	Use this function when RUBBER-ROLLER-K is installed or ROLLER-ASSY1B~4B are replaced. [13] Checks whether the Feed roller adjustment is completed, and displays the result.												
	<table border="1"> <thead> <tr> <th>Function No. Display</th> <th>Meaning</th> <th>Required action</th> </tr> </thead> <tbody> <tr> <td></td> <td>Adjustment completed</td> <td>---</td> </tr> <tr> <td></td> <td>Sub-scanning magnification not adjusted yet</td> <td>Perform sub-scanning adjustment (Section 7.1.10) for the scanner RUBBER-ROLLER-K installed.</td> </tr> <tr> <td></td> <td>RUBBER-ROLLER-K not installed</td> <td>If this is displayed when RUBBER-ROLLER-K has already been installed, update the firmware with the tool enclosed with the RUBBER-ROLLER-K.</td> </tr> </tbody> </table>	Function No. Display	Meaning	Required action		Adjustment completed	---		Sub-scanning magnification not adjusted yet	Perform sub-scanning adjustment (Section 7.1.10) for the scanner RUBBER-ROLLER-K installed.		RUBBER-ROLLER-K not installed	If this is displayed when RUBBER-ROLLER-K has already been installed, update the firmware with the tool enclosed with the RUBBER-ROLLER-K.
	Function No. Display	Meaning	Required action										
		Adjustment completed	---										
	Sub-scanning magnification not adjusted yet	Perform sub-scanning adjustment (Section 7.1.10) for the scanner RUBBER-ROLLER-K installed.											
	RUBBER-ROLLER-K not installed	If this is displayed when RUBBER-ROLLER-K has already been installed, update the firmware with the tool enclosed with the RUBBER-ROLLER-K.											

*1: The firmware version is normally expressed by an alphabet, such as A, B or C. However, if the firmware is a beta version, two digits are added after the alphabet character, such as A01, A02 or A03. So firmware version such as A00, B00 or C00 means this is an official released firmware version.

[How to abort]

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	235/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

7.1.8 Maintenance Mode #7: EEPROM data restore

When replacing the Panel PCA, the EEPROM data on the Panel PCA must be moved to the flash memory. In this mode, the data is restored from the Control PCA to the Panel PCA.

[Start to operate]

- (1) From screen T04, press the **Function** button until  (Maintenance mode #7) is displayed and press the **Scan** button. Screen T71 is displayed on the Function No. Display.

Screen T71

Function No. Display	Scanner status	Available buttons
	<p>“o” (lower half) blinks.</p> <p>Confirming whether the data is restored or not.</p>	<p>Scan + Function: Returns the data from the Control PCA to the EEPROM. During the restore operation, screen T72 is displayed.</p> <p>Send to button: Terminates this mode and returns to screen T04.</p>

To restore the EEPROM data, press the **Scan** and **Function** buttons simultaneously, then let go. The restore operation begins. Screen T72 is displayed during the operation. T73 is displayed when restoration is complete.

Screen T72

Function No. Display	Scanner status	Available buttons
	<p>“L” lights without blinking.</p> <p>The data is being restored.</p>	All buttons are disabled.

When the data restoration is successful, the following display appears. Press the **Send to** button: to return to screen T04.

Screen T73 Normal termination

Function No. Display	Scanner status	Available buttons
	<p>Displays “o” (upper half) without blinking.</p> <p>The data has been restored successfully.</p>	Send to button: Terminates this mode and returns to screen T04.

When no data exists on the Control PCA, the following display appears. Press the **Send to** button to return to screen T04.

Screen T74 No data

Function No. Display	Scanner status	Available buttons
	Displays “c” without blinking.	Send to button: Terminates this mode and returns to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	236/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai			

7.1.9 Maintenance Mode #8: Ultrasonic sensor adjustment

In this mode, the optimum Ultrasonic sensor (US sensor) correction value is automatically calculated in order to improve the multi feed detection accuracy.

NOTICE

Before this adjustment, obtain the US sensor adjustment sheet (A4 sized thick paper – 180g/m²) described in Section 6.4.

[How to operate]

- (1) From screen T04, press the **Function** button until  (Maintenance mode #8) is displayed.
- (2) Place the US Sensor adjustment sheet on the Hopper in Portrait orientation.
- (3) Press the **Scan** button. The adjustment will begin.

Screen T81 is displayed during the Ultrasonic sensor adjustment.

Screen T81

Function No. Display	Scanner status	Available buttons
	Blinking “5” is displayed during adjustment.	All buttons are disabled.

If  is displayed, the adjustment was successful. Go to item No.4. If  is displayed, the adjustment failed. Go to item No.5.

NOTICE

After reading the US sensor adjustment sheet, it takes approx. 10 seconds for the scanner to calculate the sensor correction value.

[How to abort]

Press the **Send to** button during the adjustment operation. The operation is terminated and the Maintenance mode selection screen (T04) appears.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	237/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

(4) When the ultrasonic sensor adjustment is successful

If the ultrasonic sensor adjustment is successful, Screen T82 appears. To save the adjustment result, press the **Function** button. If not, press the **Send to** button.

Screen T82

Function No. Display	Scanner status	Available buttons
	Displays "o" without blinking. The adjustment has been successful.	Function button: Displays screen T83 and saving of the ultrasonic sensor correction value in EEPROM is available. Send to button: Terminates this mode and returns to screen T04.

After the **Function** button is pressed, Screen T83 is displayed. To save the adjustment result, press the **Scan** and the **Function** buttons simultaneously, then let go. The saving operation begins. Screen T84 is displayed during operation, and T85 is displayed when saving has completed.

Screen T83

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Confirming whether the correction value is saved into EEPROM or not.	Scan + Function button, then let go: Begin saving the ultrasonic sensor correction value into EEPROM. During the saving operation, screen T84 displayed. Screen T85 is displayed when saving is complete. Send to button: Terminates this mode and returns to screen T04.

Screen T84

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. Correction value is being saved into EEPROM.	All buttons are disabled.

Screen T85

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. The value has been saved successfully.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	238/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

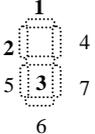
(5) When the ultrasonic sensor adjustment fails

When the ultrasonic sensor adjustment fails, Screen T86 appears. Press the **Function** button to see what error has occurred. After checking the error, press the **Send to** button to return to Screen T04.

Screen T86

Function No. Display	Scanner status	Available buttons
	Displays "c" without blinking. The adjustment has failed.	Function button: Displays error information (screen T87) Send to button: Terminates this mode and returns to screen T04.

Screen T87

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: Adjustment failed because of incorrect sensor 1 output. 2: Adjustment failed because of incorrect sensor 2 output. 3: Adjustment failed because of incorrect sensor 3 output.	Confirm whether this adjustment has been performed with the US Sensor Adjustment sheet in Section 6.4. If the adjustment sheet is the proper one, the US sensor or US PCA is defective.

Send to button: Terminates this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 239/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	239/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

7.1.10 Maintenance Mode #9: Sub-scanning magnification adjustment (When RUBBER-ROLLER-K is installed ~~or ROLLER-ASSY 1B ~ 4B replaced~~)

13

After RUBBER-ROLLER-K installation ~~or ROLLER-ASSY 1B ~ 4B replacement~~, sub-scanning magnification value is automatically calculated to satisfy the following magnification value:

Sub-scanning magnification value: Within $\pm 1.0\%$

NOTICE

- Perform this adjustment ONLY WHEN RUBBER-ROLLER-K or FEED-ROLLER-K is replaced. Otherwise, sub-scanning magnification of output image is adversely affected.
- Before this adjustment, prepare 10 sheets of white A3-sized paper (Sections 8.59, 8.60) enclosed with the kit.

[How to operate]

(1) From screen T04, press the **Function** button until  (Maintenance mode #9) is displayed.

Press the **Scan** button. The number indicating the adjustment position is displayed on the Function No. Display as below

Function No. Display	Adjustment position	Remarks
0	ADF sub-scanning magnification adjustment (displayed when RUBBER-ROLLER-K is installed or ROLLER-ASSY 1B ~ 4Bs are replaced.) 13	Initial value Prepare the Adjustment Test sheet described in figure 7.1.3.

If the RUBBER-ROLLER-K has not been installed yet, the Function No. Display displays .

If  is displayed when the RUBBER-ROLLER-K has been installed, update the firmware using the tool enclosed with the RUBBER-ROLLER-K.

(2) Set 10 sheets of white A3-sized paper (Figure 7.1.3) on the Hopper in Portrait orientation, and adjust the side guides to the width of the sheet.

Press the **Scan** button to begin the adjustment operation.

If  is displayed, the sub-scanning magnification adjustment has been successful. Go to step (3). If  is displayed, the sub-scanning magnification adjustment has failed. Go to step.4.

[How to abort]

Press the **Send to** button during the adjustment operation. The operation stops and the Maintenance mode selection screen (T04) appears.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	240/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

(3) When the sub-scanning magnification adjustment is completed successfully

If the sub-scanning magnification adjustment is completed successfully, Screen T91 is displayed on the Function No. Display. To save the adjustment result, press the **Function** button. If not, press the **Send to** button.

Screen T91

Function No. Display	Scanner status	Available buttons
	Displays "o" (lower half) without blinking. The adjustment has been successful.	Function button: Displays screen T92. Saves the magnification correction value into EEPROM. Send to button: Terminates this mode and returns to screen T04.

After the **Function** button is pressed, Screen T92 is displayed. To save the adjustment result, press the **Scan** and the **Function** buttons simultaneously. The saving operation begins. Screen T93 is displayed during this operation. Screen T94 is displayed when saving is completed.

Screen T92

Function No. Display	Scanner status	Available buttons
	"o" (lower half) blinks. Confirming whether the correction value is saved into EEPROM.	Scan + Function buttons: Begin saving the magnification correction value into EEPROM. During the saving operation, screen T93 is displayed. Screen T94 is displayed when saving is completed. Send to button: Terminates this mode and returns to screen T04.

Screen T93

Function No. Display	Scanner status	Available buttons
	"L" lights without blinking. Correction value is being saved into EEPROM.	All buttons are disabled.

Screen T94

Function No. Display	Scanner status	Available buttons
	"o" (upper half) lights without blinking. The value has been saved successfully.	Send to button: Terminates this mode and returns to screen T04.

Press the **Send to** button to terminate this mode and return to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 241/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(4) When the sub-scanning magnification adjustment fails

When the sub-scanning adjustment fails, Screen T95 appears. Press the **Function** button to see what error has occurred. A screen similar to Screen T96 is displayed. After checking the error, press the **Send to** button to return to Screen T04.

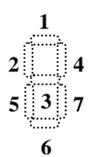
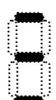
Screen T95

Function No. Display	Scanner status	Available buttons
	Displays "c" without blinking. The adjustment has failed.	Function button: Displays error information (screen T96) Send to button: Terminates this mode and returns to screen T04.

 **NOTICE**

The most common reason for adjustment failure is placing the Test sheets improperly on the Hopper.
Place the Test sheet properly on the Hopper and run the magnification adjustment again.

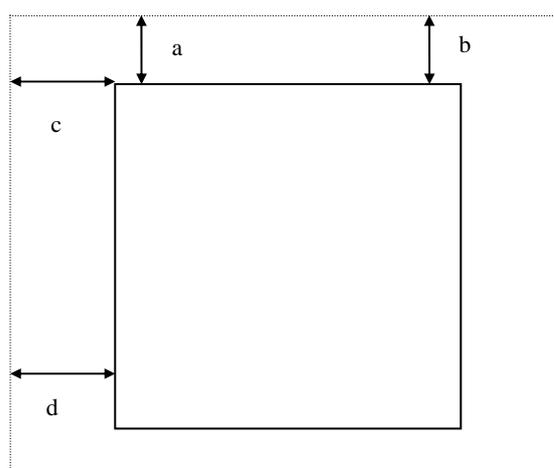
Screen T96

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: Cannot detect the leading edge of the document (incapable of Black detection) (Image is shifted upward too much) 2: Cannot detect the left edge of the document (incapable of Black detection) (Image is shifted to left too much.) 3: Cannot detect the leading edge of the document (incapable of White detection) (Image is shifted downward too much.) 5: Cannot detect the left edge of the document (incapable of White detection) (Image is shifted to right too much.) 4: Excessive skew A 7: Excessive skew B 6: The number of scanned sheets is less than 10.	Conduct necessary operation by referring to step (2) and later in Section 5.3.7.
	Adjustment error	The feed roller may be the old one. Confirm if new roller has been installed.

Skew A and B are calculated by the following expression.

$$\text{Skew A} = a - b$$

$$\text{Skew B} = c - d$$



<Available buttons on screen T96>

Send to button: Terminates this mode and returns to screen T04.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	242/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

7.2 Saving EEPROM Data

The EEPROM data on the Panel PCA can be saved onto the flash memory on the Control PCA. This operation is required when replacing the Panel PCA. Since this operation is performed when the Panel PCA is malfunctioning, the following procedure was designed to save the EEPROM data without the use of the operator panel.

NOTICE

- Do not perform this procedure unless the Panel PCA is malfunctioning.
- The Panel PCA from which the data was saved to the flash memory cannot be used again.
- Make sure to have a new Panel PCA before saving the EEPROM data.

[How to save the EEPROM data onto the Control PCA]

1. Open the Pre-Imprinter cover. While the Pick unit is moved to the single manual feed position (pull up the Pick roller unit until it locks in place, Section 3.1.12) and the Hopper empty sensor is pulled up (no paper on the Hopper), power on the scanner. "P" → "H" is displayed.
2. When the Function number display shows "H", move the Pick unit from the single manual feed position to the normal position (Section 3.1.12), then to the single manual feed position again. Repeat this action twice. (After "H" is shown, operate the manual feed sensor ON → OFF → ON → OFF → ON. Make sure you have more than 1 second between every ON and OFF.)
3. Close the Imprinter cover. "L" is displayed when the Function No. Display is working normally.
4. After more than 5 seconds elapse, open the Imprinter cover.
5. When the EEPROM data is successfully saved, the buzzer sounds once. And  is displayed on the Function Number Display if it is working properly.
In case the EEPROM data is not successfully saved, the buzzer does not sound. And  is displayed on the Function Number Display if it is working properly.

NOTICE

If EEPROM data is saved in the flash memory successfully, the scanner writes information on the Panel PCA that disables the usage of it. The replacement of the Panel PCA is required after saving the EEPROM data to the Control PCA. If the scanner is turned on without replacing the Panel PCA, "E" and "6" are displayed alternately on the Operator panel which signifies an error.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED			PAGE 243/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

7.3 Emulations

The fi-5900C gives you the ability to change the emulation of the scanner. The available scanner emulations are listed below.

- M4099D
- fi-4860C
- fi-4990C

13

NOTICE

When the scanner operates as M4099D, binary scanning by the ISIS driver is not supported.

(1) How to activate the Emulation mode

- (1) Make sure the scanner is OFF.
- (2) Make sure the Hopper is open.
- (3) Make sure the Pick roller unit is not in the Manual Feed position.
- (4) Open the Pre-Imprinter cover.
- (5) Turn the scanner ON while holding down the **Function** button. Continue holding the **Function** button down until Screen B below is displayed.
- (6) Let go of the **Function** button. Screen C appears when entering this mode.

In this mode, the scanner interface is off-line.

The following display appears during initial processing in Emulation mode.

Screen A

Function No. Display	Power LED	Scanner status
	ON	Initializing

After the initial processing, the display changes as follows.

Screen B

Function No. Display	Power LED	Scanner status
	ON	Maintenance mode



Let go of the **Function** button

Screen C

Function No. Display	Power LED	Scanner status
	ON	Initial status of emulation switching mode

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 244/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				T.Anzai

[How to start]

- (1) When  is displayed, press the  button to show the model selection screen.

A number is shown on the Function No. Display indicating the model to be emulated.

Function No. Display	Model	Remarks
0	fi-5900C	Default (standard). Emulation mode invalid.
1	M4099D	Emulation (The scanner returns the Product ID "M4099Ddjm" to the host)
2	fi-4860C	Emulation (The scanner returns the Product ID "fi-4860CEAdj" to the host)
3	fi-4990C	Emulation (The scanner returns the Product ID "fi-4990CEAdj" to the host)

- (2) Change the selection by pressing the  button.

- (3) Press the  button, and confirm that the numbers of the selected model appears on the Function No. Display as shown in below.

The selected model is displayed as below.

Emulation mode	How to display
fi-5900C	Starting with "-", "5900" is indicated as follows: "-" → "5" → "9" → "0" → "0" The display changes every 0.5 second.
M4099D	Starting with "-", "4099" is indicated as follows: "-" → "4" → "0" → "9" → "9" The display changes every 0.5 second.
f-4860C	Starting with "-", "4860" is indicated as follows: "-" → "4" → "8" → "6" → "0" The display changes every 0.5 second.
fi-4990C	Starting with "-", "4990" is indicated as follows: "-" → "4" → "9" → "9" → "0" The display changes every 0.5 second.

- (4) To change the emulation, press the  button. If not, press the  button.

After the  button is pressed, Screen E11 is displayed. To change the emulation, press the  and  buttons simultaneously, then let go. The saving operation begins. Screen E12 is displayed during the operation. E13 is displayed when saving is complete.

Screen E11

Function No. Display	Power LED	Scanner status	Available buttons
	ON	Confirming emulation change "o" (lower half) blinks.	 +  buttons: Saves the selected model into EEPROM. Screen E12 is displayed during saving. If saving into the EEPROM is completed successfully, screen E13 is displayed. If saving into the EEPROM fails, screen E14 is displayed.  button: Returns to the initial display of the emulation mode.

Screen E12

Function No. Display	Scanner status	Available buttons
	Saving data into EEPROM. "L" lights without blinking.	All buttons are disabled.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 245/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	245/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

Screen E13

Function No. Display	Scanner status	Available buttons
	Selecting the emulated model has succeeded. Displays "o" (upper half) without blinking.	<u>Send to</u> button: Returns to the initial emulation mode display.

Screen E14

Function No. Display	Scanner status	Available buttons
	Selecting the emulated model has failed. Displays "c" without blinking.	<u>Send to</u> button: Returns to the initial emulation mode display.

7.4 (Reserved)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	246/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

7.5 Updating firmware at RUBBER-ROLLER-K installation

Follow the procedure below for firmware update after installing RUBBER-ROLLER-K.

- (1) Connect the standard interface USB port and the USB connector on the scanner with a USB cable, turn on the scanner, and then turn on the PC.
- (2) Run the firmware update tool “FisRomUp_NFR.exe”.

Note: Download the firmware update tool from the website below.

If you cannot access the site, contact your local Fujitsu office.

<http://imaging-ss.trad.pfu.co.jp/downloads/firmwares/fi-5900c.html>

Note 1: After the installation of this firmware, the value "40" may be seen at the address “ 0x10” in EEPROM.

The firmware can control the feeding suitable for the rubber roller by this change in EEPROM.

Note 2: This installation shall be performed, even if existing firmware version is larger than this update version.

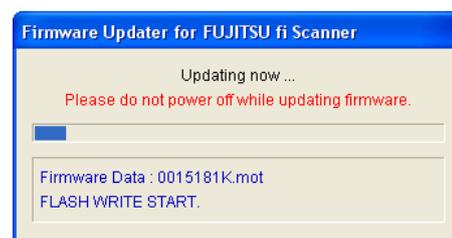
This firmware update only changes the scanner control for rubber roller, and does not affect any function which has been supported by previous firmware.

- (3) The confirmation dialog box below appears. Click the [Yes] button to start updating.



- (4) The following screens are displayed during updating.

* Do NOT turn off the PC during updating. This tool updates three firmware at a time.



Writing SDC



Writing MDC

Writing PUC

If the firmware currently installed in the scanner is unnecessary to update, the right dialog box appears. Click the [OK] button to terminate the update tool. In this case, go to step (8).

(ex) SDC firmware)



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	247/327		
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai					

(5) When updating has completed, the dialog box shown on the right appears.

Click the [OK] button to terminate the update tool.



(6) After updating, confirm that the scanner firmware version is as shown in the table below. Firmware version can be confirmed in the Maintenance Mode# 6. (Refer to Section 7.1.7.)

Firmware type	Firmware version	Version (Maintenance mode #6)
SDC	0N00 or later	1400 or later
MDC	0K00 or later	1100 or later
PUC	0E00 or later	0500 or later

(7) <<Updating the scanner version by updating the firmware>>

When the firmware is updated, which means that the scanner firmware version corresponds with that in the table above, circle the new scanner version number after update on the manufacture label at the rear side of the scanner with a permanent marker (refer to the illustration below). The new scanner version after update is as shown in the table below.

Scanner model number	Scanner version after firmware update
PA03450-B001 / B002 / B005 / B007	B8
PA03450-B003 / B011 / B015 / B017	B3

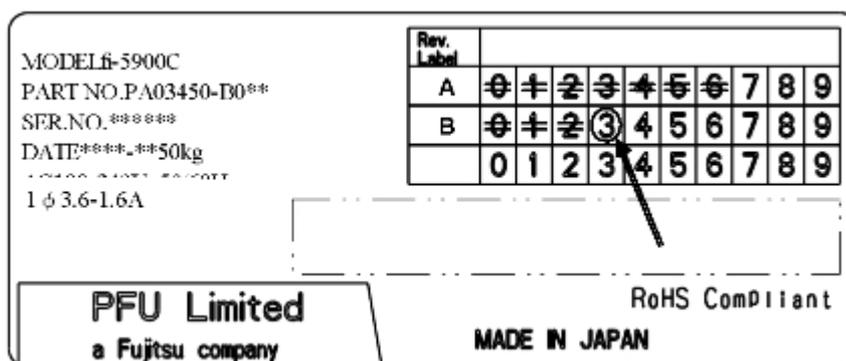


Figure: Circle the appropriate number that corresponds to the updated scanner version on the manufacture label

(Ex: New scanner version is B3)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	248/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai					

(8)<<Updating the scanner version after RUBBER-ROLLER-K is installed>>

If RUBBER-ROLLER-K is installed, the scanner version will be upgraded. In the same way as described in step (7), circle the new scanner version number on the manufacture label with a permanent marker (refer to the illustration below). The scanner version after RUBBER-ROLLER-K installation is as shown in the table below.

Scanner model number	Scanner version after RUBBER-ROLLER-K is installed
PA03450-B001	N/A
PA03450-B002 / B005 / B007	B9
PA03450-B003 / B015 / B017	B4
PA03450-B011	N/A

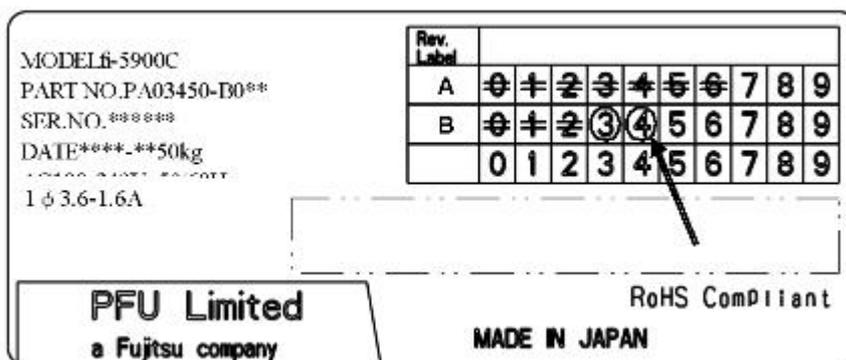


Figure: Circle the appropriate number that corresponds to the updated scanner version on the manufacture label

(Ex: New scanner version is B4)

Now , the scanner firmware updating is complete.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	249/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Chapter 8 Maintenance Parts

<Maintenance Parts list>

No.	Description	Part Number	Quantity		Reference Section	Replacing Procedure	Notes
1	CONTROL PCA	PA03450-D900	1		8.1	6.12	
2	DRIVER PCA	PA03450-D901	1		8.2	6.16.3	
3	PANEL PCA	PA03450-D902	1		8.3	6.7	
4	POWER SUPPLY	PA03450-D928	1		8.4	6.10.1	
5	FAN ASSY	PA03450-D929	1		8.5	6.10.2	
6	CCD UNIT	PA03450-D903	2		8.6	6.15.13 6.16.15	
7	LAMP ASSY	PA03450-D904 PA03450-D966 ⁰⁸	2		8.7	6.15.8 6.16.13	*1 ⁰⁷
8	INVERTER	PA03450-D930	2		8.8	6.15.9, 6.16.14	
9	US SENSOR	PA03334-F902	6		8.9	6.17	
10	SENSOR	PA03338-D816	7		8.10	6.18	
11	SENSOR	CA03950-0228	3		8.11	6.19	
12	SENSOR	PA03450-D931	3		8.12	6.20	
13	MICROSWITCH	CA98010-2258	2		8.13	6.21	
14	SENSOR PTR ASSY	PA03450-D932	1		8.14	6.16.17	
15	SENSOR PTR	PA03450-D933		4	8.15	6.16.17	
16	SENSOR LED ASSY	PA03450-D934	1		8.16	6.16.16	
17	SENSOR LED	PA03450-D935		4	8.17	6.16.16	
18	FEED MOTOR	PA03450-F908	2		8.18	6.15.10 6.15.11	
19	BW MOTOR	PA03338-D822	2		8.19	6.15.7, 6.16.12	
20	TABLE MOTOR	PA03450-F909	2		8.20	6.15.12 6.16.2	
21	SEPARATION MOTOR	PA03450-F910	1		8.21	6.16.4	
22	BELT FEED 2	PA03450-D946	1		8.22	6.15.10	*1 ⁰⁷
23	BELT FEED 1	PA03450-D945	1		8.23	6.15.11	*1 ⁰⁷
24	BELT SEPARATION	PA03450-D947	1		8.24	6.16.4	*1 ⁰⁷
25	BELT PICK	PA03450-D948	1		8.25	6.16.10	*1 ⁰⁷
26	GAS DAMPER	PA03450-D936	2		8.26	6.13	
27	DISELECTRIC BRUSH	PA03296-Y190	1	³ ⁰²	8.27	6.14	

⁰⁷

*1: Periodical replacement parts

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	250/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

<Maintenance Parts list> (cont'd)

No.	Description	Part Number	Quantity			Reference Section	Replacing Procedure	Remarks
28	BRAKE TORQUE UNIT	PA03450-D910	1			8.28	6.15.1	
29	SENSOR PCA	PA03450-D906		1		8.29	6.15.4	
30	US PCA	PA03334-K906		3		8.30	6.15.3	
31	TORQUE ASSY	PA03450-F911		1		8.31	6.15.2	
32	ENCODER PCA 1	PA03450-D907 PA03450-D909 11		1		8.32	6.15.5	
33	SEPARATOR UNIT	PA03450-D911	1			8.33	6.16.5	
34	(Reference) PICK ROLLER ASSY	---		1		8.34	6.16.7	Not a maintenance part.
35	PICK SOLENOID	PA03450-F912		1		8.35	6.16.6	
36	ENCODER PCA 1	PA03450-D907		1		8.32	6.16.8	
37	ENCODER PCA 2	PA03450-D908		1		8.37	6.16.9	
38	LF MOTOR	PA03450-D939		1		8.38	6.16.10	
39	BACKGROUND UNIT, LOWER	PA03450-D913 PA03450-D963 08	1			8.39	6.15.6	
40	BACKGROUND UNIT, UPPER	PA03450-D914 PA03450-D964 08	1			8.40	6.16.11	
41	GLASS ASSY	PA03450-D915 PA03450-D965 08	2			8.41	6.15.8, 6.16.13	
42	HOPPER UNIT	PA03450-D917	1			8.42	6.5.1	
43	STACKER UNIT	PA03450-D918	1			8.43	6.5.3	
44	STACKER SLIDE3 ASSY	PA03450-D940		1		8.44	6.5.4	
45	STOPPER	PA03450-D941		1		8.45	6.5.2	
46	LIFT ASSY	PA03450-D942	1			8.46	6.16.1	
47	SUPPORTER	PA03450-D943	1			8.47	3.1.8	
48	BACK PANEL PCA	PA03450-D922	1			8.48	6.11	
49	BRUSH 1	PA03450-F933	2			8.49	6.8	
50	BRUSH 2	PA03450-F934	1			8.50	6.9	
51	CGA BOARD	PA03450-D949 PA03450-K921 07	1			8.51	—	
52	DIMM	PA03450-D950	1			8.52 13	—	
53	PAD BASE ASSY	PA03450-D957 PA03450-D961 10	1			8.53	6.22	
54	RUBBER-ROLLER-K	PA03540-K970	1			8.59	6.27	FR1 ~ FR9 Periodical replacement part
55	FEED-ROLLER-K	PA03540-D975	1			8.60	6.28	FR1 ~ FR9 Periodical replacement part

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	251/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.1 CONTROL PCA

Description	Part Number	Remarks
CONTROL PCA	PA03450-D900	

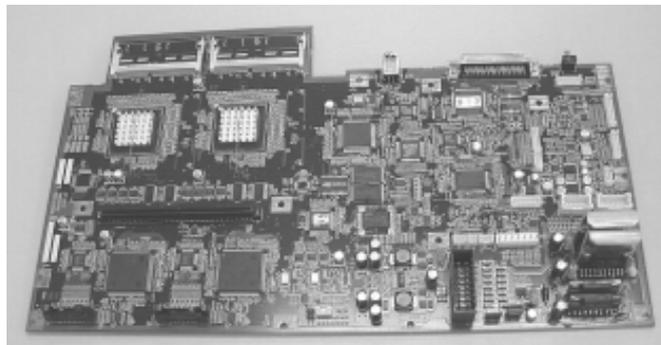


Photo 8.1

8.2 DRIVER PCA

Description	Part Number	Remarks
DRIVER PCA	PA03450-D901	

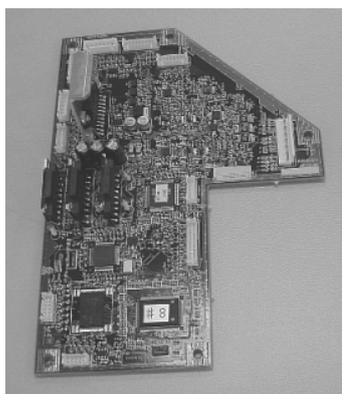


Photo 8.2

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 252/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	252/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.3 PANEL PCA

Description	Part Number	Remarks
PANEL PCA	PA03450-D902	

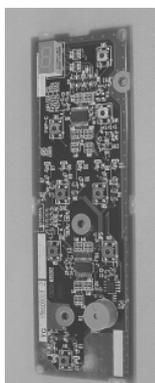


Photo 8.3

8.4 POWER SUPPLY

Description	Part Number	Remarks
POWER SUPPLY	PA03450-D928	

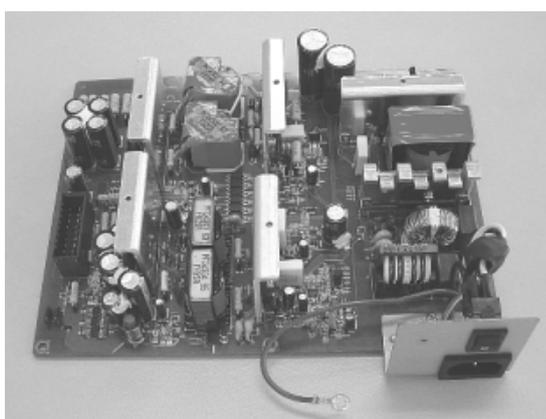


Photo 8.4

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 253/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	253/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.5 FAN ASSY

Description	Part Number	Remarks
FAN ASSY	PA03450-D929	



Photo 8.5

8.6 CCD UNIT

Description	Part Number	Remarks
CCD UNIT	PA03450-D903	Front and backside. The white level adjustment sheet is included with each CCD Unit.

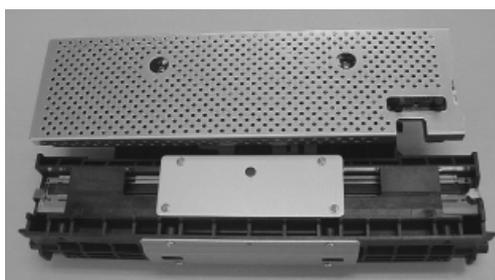


Photo 8.6

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	254/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.7 LAMP ASSY

Description	Part Number	Remarks
LAMP ASSY	PA03450-D904 PA03450-D966 08	Front and backside. The white level adjustment sheet is included with each CCD Unit. A periodical replacement part. Replacement cycle: 10,000,000 sheets 07

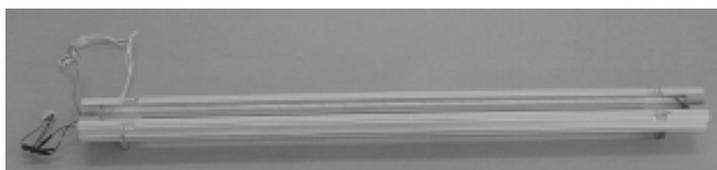


Photo 8.7

8.8 INVERTER

Description	Part Number	Remarks
INVERTER	PA03450-D930	Front and backside.

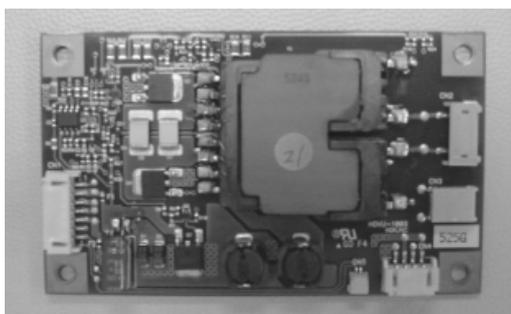


Photo 8.8

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 255/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.9 US SENSOR

Description	Part Number	Remarks
US SENSOR	PA03334-F902	This Ultrasonic sensors are installed in the following locations. 1. Brake Torque Unit 2. Separator Unit



Photo 8.9

8.10 SENSOR

Description	Part Number	Remarks
SENSOR	PA03338-D816	This horse-shoe type sensor is installed in the following locations. 1. Left side of Lift ASSY 2. Right side of Hopper Channel 3. Back side of Hopper Channel 4. Right side of background Unit, Lower 5. Right side of Background Unit, Upper 6. Separator Unit

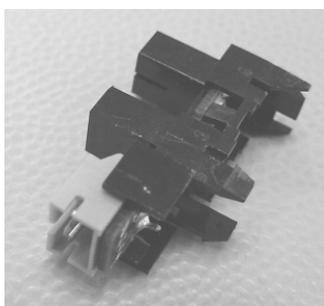


Photo 8.10

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 256/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	256/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.11 SENSOR

Description	Part Number	Remarks
SENSOR	CA03950-0228	This prism sensor is installed in the following locations. 1. Upper unit guide 1 (IMP Top Sensor) 2. Background Unit, Lower (READ Top Sensor) 3. Base unit guide 2 (REJ Sensor)

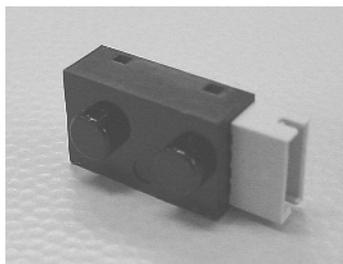


Photo 8.11

8.12 SENSOR

Description	Part Number	Remarks
SENSOR	PA03450-D931	This reflective type sensor is installed in the following locations. 1. Upper unit guide 4 (EXIT Sensor) 2. Bottom of the Upper unit (FD1R Rotation Detection Sensor) 3. Back side of the Upper unit (FD6R Rotation Detection Sensor)

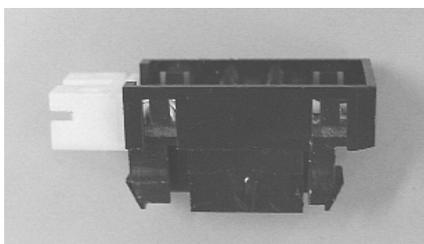


Photo 8.12

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	257/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.13 MICROSWITCH

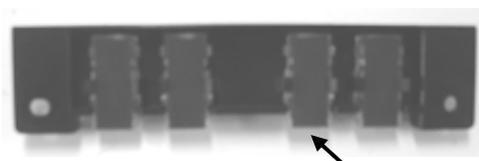
Description	Part Number	Remarks
MICROSWITCH	CA98010-2258	This Microswitch is installed at the following locations. 1. The left side of the Base unit (Open/close of the Upper unit) 2. The front side of the Upper unit (Open/close the Imprinter cover)



Photo 8.13

8.14 SENSOR PTR ASSY

Description	Part Number	Remarks
SENSOR PTR ASSY	PA03450-D932	Stacker light receptor Installed at right side of the scanner.



Sensor PTR (frame: black)

Photo 8.14

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 258/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.15 SENSOR PTR

Description	Part Number	Remarks
SENSOR PTR	PA03450-D933	Stacker light receptor Installed at right side of the scanner.

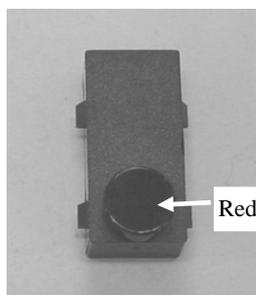
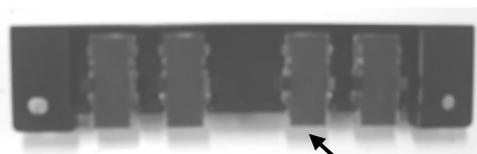


Photo 8.15

8.16 SENSOR LED ASSY

Description	Part Number	Remarks
SENSOR LED ASSY	PA03450-D934	Stacker illuminator Installed at left side of the scanner.



Sensor LED (frame: no color)

Photo 8.16

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 259/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	259/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.17 SENSOR LED

Description	Part Number	Remarks
SENSOR LED	PA03450-D935	Stacker illuminator Installed at left side of the scanner.

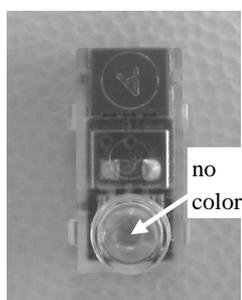


Photo 8.17

8.18 FEED MOTOR

Description	Part Number	Remarks
FEED MOTOR	PA03450-F908	Installed at the following location: 1. The lower left side of the Base unit Drives Roller 1 ~ Roller2 on the lower transport path. 2. The Upper left side of the Base unit Drives Roller 3 ~ Roller 9 on the lower transport path.



Photo 8.18

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 260/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	260/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.19 BW MOTOR

Name	Part Number	Remarks
BW MOTOR	PA03338-D822	Installed at the following locations. 1. The right side of the Base unit 2. The right side of the Upper unit Used to switch the background unit color.

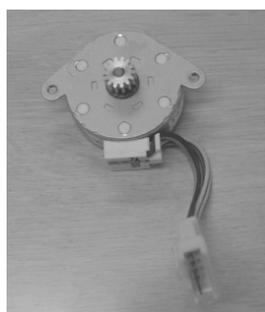


Photo 8.19

8.20 TABLE MOTOR

Name	Part Number	Remarks
TABLE MOTOR	PA03450-F909	Installed at the following locations (gold gear) : 1. The right side of the Base unit(for raising and lowering the Hopper) 2. The right side of the Upper unit (for raising and lowering the Stacker)

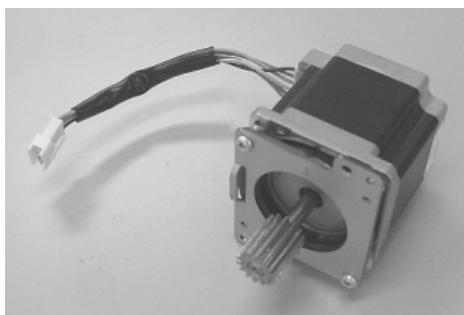


Photo 8.20

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 261/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	261/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.21 SEPARATION MOTOR

Name	Part Number	Remarks
SEPARATION MOTOR	PA03296-D712	Installed at the right side of the Upper unit



Photo 8.21

8.22 BELT FEED 2

Name	Part Number	Remarks
BELT FEED 2	PA03450-D946	Installed at the lower left side of the Base unit (Drives Roller 1 and 2 on the lower transport path.) Number of teeth: 160 Width: 9mm Length: 320mm A periodical replacement part. Replacement cycle: 10,000,000 sheets 07



Photo 8.22

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 262/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE 262/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.23 BELT FEED 1

Name	Part Number	Remarks
BELT FEED 1	PA03450-D945	Installed at the upper left side of the Base unit (Drives Roller 3 ~ 9 on the lower transport path) Number of teeth: 598 Width: 9mm Length: 1196mm A periodical replacement part. Replacement cycle: 10,000,000 sheets 07

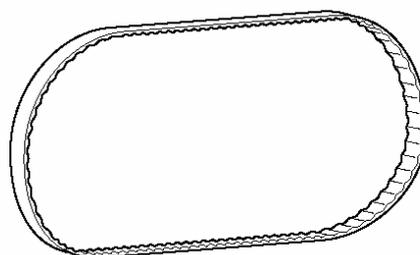


Photo 8.23

8.24 BELT SEPARATION

Name	Part Number	Remarks
BELT SEPARATION	PA03450-D947	Installed at the right side of the Upper unit Number of teeth: 145 Width: 6mm Length: 290mm A periodical replacement part. Replacement cycle: 10,000,000 sheets 07

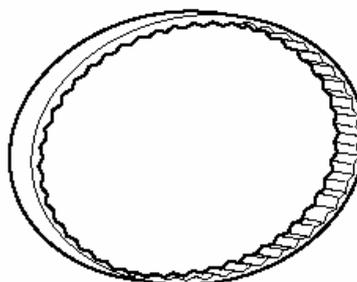


Photo 8.24

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	263/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.25 BELT PICK

Name	Part Number	Remarks
BELT PICK	PA0450-D948	Installed in the Separator Unit. Number of teeth: 100 Width: 6mm Length: 200mm A periodical replacement part. Replacement cycle: 10,000,000 sheets 07

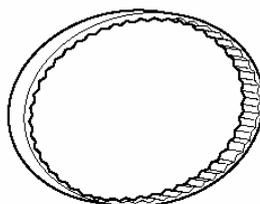


Photo 8.25

8.26 GAS DAMPER

Description	Part Number	Remarks
GAS DAMPER	PA03450-D936	



Photo 8-26

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	264/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.27 DISELECTRIC BRUSH

Description	Part Number	Remarks
DISELECTRIC BRUSH	PA03296-Y190	Located in the Upper Transport where the paper exits the scanner.

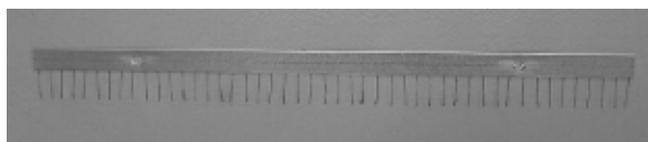


Photo 8.27

8.28 BRAKE TORQUE UNIT

Description	Part Number	Remarks
BRAKE TORQUE UNIT	PA03450-D910	Includes the Sensor PCA (PA03950-D906). Includes the US sensor adjustment sheet.

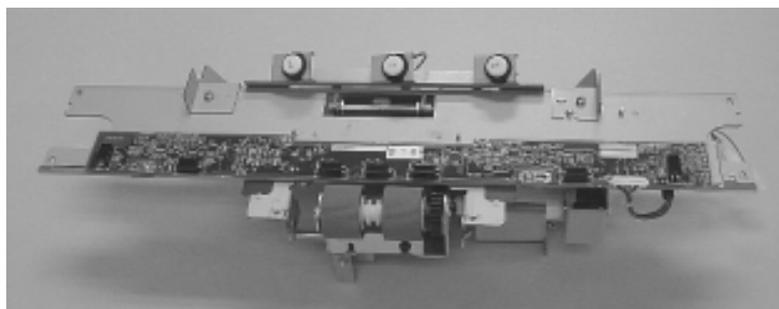


Photo 8.28

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No.	P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	265/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.29 SENSOR PCA

Description	Part Number	Remarks
SENSOR PCA	PA03450-D906	Jam detection. Foam sheet is attached.



Photo 8.29

8.30 US PCA

Description	Part Number	Remarks
US PCA	PA03334-K906	

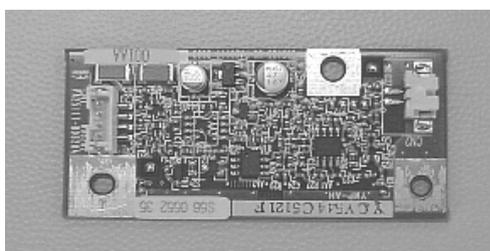


Photo 8.30

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 266/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	266/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.31 TORQUE ASSY

Description	Part Number	Remarks
TORQUE ASSY	PA03450-F911	

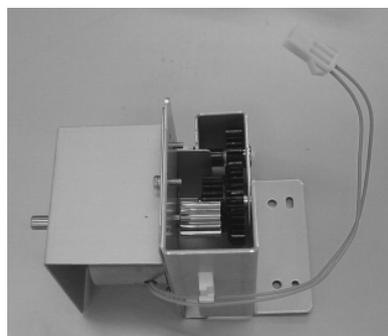


Photo 8.31

8.32 ENCODER PCA 1

Description	Part Number	Remarks
ENCODER PCA 1	PA03296-D907 PA03296-D909 11	Installed at the following locations: 1. Brake Encoder ASSY 2. Encoder ASSY (between the Separator rollers)

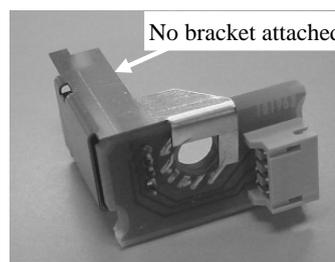
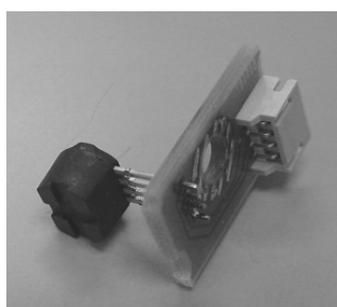


Photo 8.32

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 267/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE 267/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.33 SEPARATOR UNIT

Description	Part Number	Remarks
SEPARATOR UNIT	PA03450-D911	Includes the US sensor adjustment sheet.

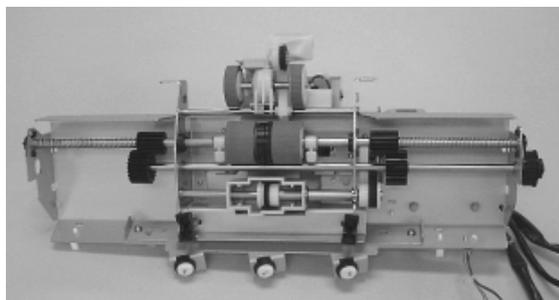


Photo 8.33

8.34 (Reference) PICK ROLLER ASSY

Description	Part Number	Remarks
PICK ROLLER ASSY	PA03450-D912	Not a maintenance part.

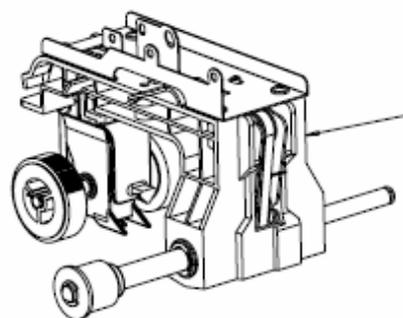


Photo 8.34

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 268/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	268/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.35 PICK SOLENOID

Description	Part Number	Remarks
PICK SOLENOID	PA03450-F912	

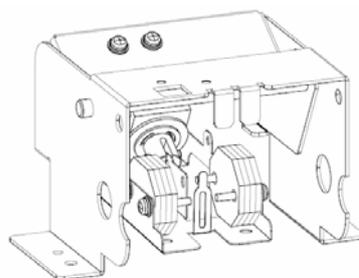


Photo 8.35

8.36 (Reserved)

Description	Part Number	Remarks

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	269/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.37 ENCODER PCA 2

Description	Part Number	Remarks
ENCODER PCA 2	PA03450-D908	Installed in the Pick Encoder Unit (between the Pick rollers)

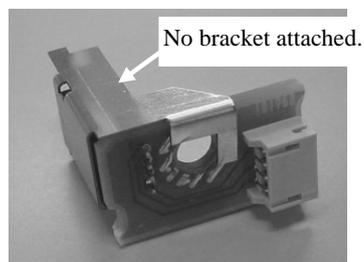
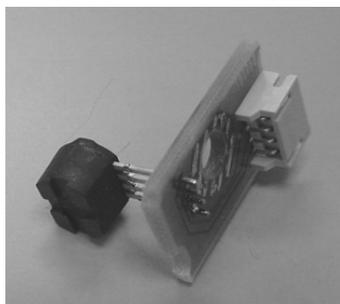


Photo 8.37

3.38 LF MOTOR

Description	Part Number	Remarks
LF MOTOR	PA03450-D939	Installed on the Separator Unit



Photo 8.38

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 270/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	270/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.39 BACKGROUND UNIT, LOWER

Description	Part Number	Remarks
BACKGROUND UNIT, LOWER	PA03450-D913 PA03450-D963 08	PA03450-D963 has a dust-proof material pasted. 09

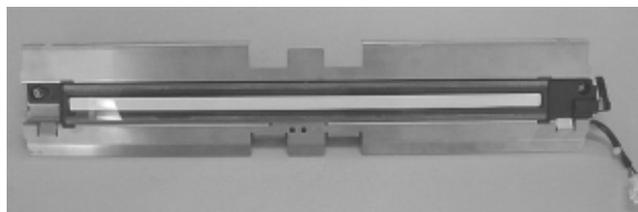


Photo 8.39

8.40 BACKGROUND UNIT, UPPER

Description	Part Number	Remarks
BACKGROUND UNIT, UPPER	PA03450-D914 PA03450-D964 08	PA03450-D964 has a dust-proof material pasted. 09

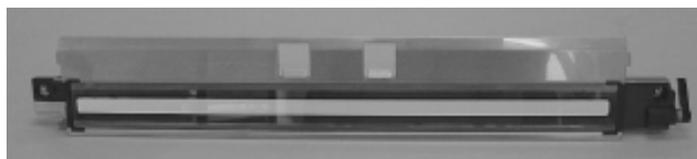


Photo 8.40

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No.	P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	271/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.41 GLASS ASSY

Description	Part Number	Remarks
GLASS ASSY	PA03450-D915 PA03450-D965 08	Covers the front and backside Lamp ASSY.



Photo 8.41

8.42 HOPPER UNIT

Description	Part Number	Remarks
HOPPER UNIT	PA03450-D917	

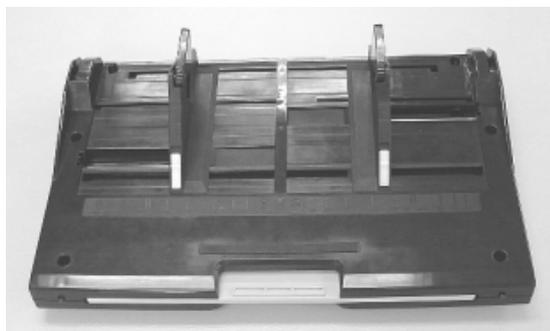


Photo 8.42

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	272/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.43 STACKER UNIT

Description	Part Number	Remarks
STACKER UNIT	PA03450-D918	.

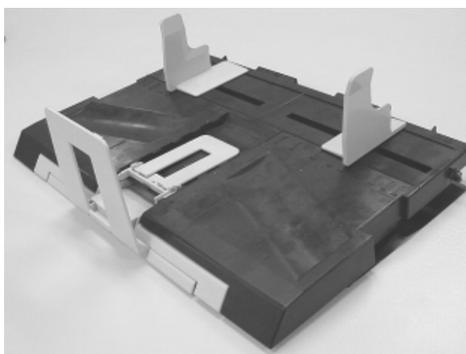


Photo 8.43

8.44 STACKER SLIDE 3 ASSY

Description	Part Number	Remarks
STACKER SLIDE 3 ASSY	PA03450-D940	



Photo 8.44

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	273/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.45 STOPPER

Description	Part Number	Remarks
STOPPER	PA03450-D941	

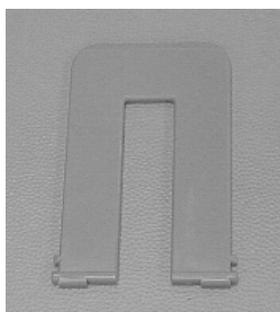


Photo 8.45

8.46 LIFT ASSY

Description	Part Number	Remarks
LIFT ASSY	PA03450-D942	



Photo 8.46

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	274/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.47 SUPPORTER

Description	Part Number	Remarks
SUPPORTER	PA03450-D943	

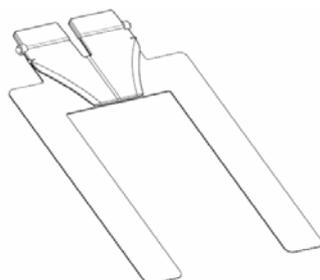


Photo 8.47

8.48 BACK PANEL PCA

Description	Part Number	Remarks
BACK PANEL PCA	PA03450-D922	

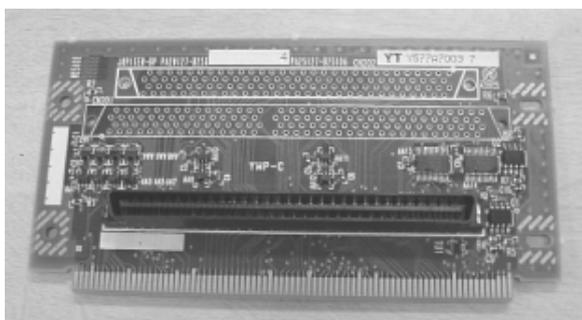


Photo 8.48

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	275/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.49 BRUSH 1

Description	Part Number	Remarks
BRUSH 1	PA03450-F933	Diselectric brush for the Pick Separator rollers and Brake roller. Two brushes are included. 04

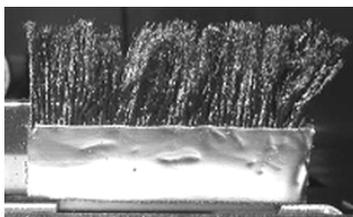


Photo 8.49

8.50 BRUSH 2

Description	Part Number	Remarks
BRUSH 2	PA03450-F934	Diselectric brush for Separator rollers and Brake Pick rollers. Two brushes are included. 04

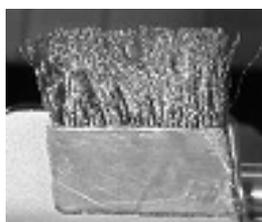


Photo 8.50

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	276/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

8.51 CGA BOARD

Description	Part Number	Remarks
CGA BOARD	PA03450-D949 PA03450-K921 07	

05

Note: After replacing the CGA board, install the DIMM that has been installed on the previous CGA board.

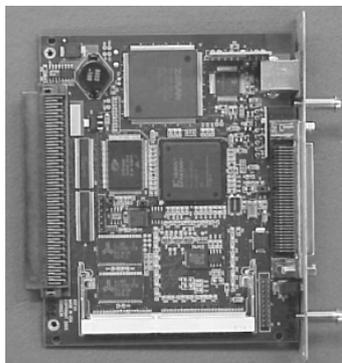


Photo 8.51

8.52 DIMM

Description	Part Number	Remarks
DIMM	PA03450-D950	

8.53 Pad Base ASSY

Description	Part Number	Remarks
Pad Base ASSY	PA03450-D957 PA03540-D961 10	

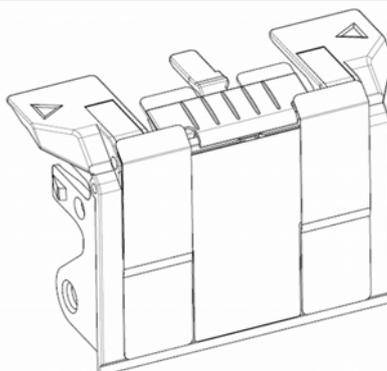


Photo 8.53

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 277/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	277/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.54 (Reserved)

8.55 (Reserved)

8.56 (Reserved)

8.57 (Reserved)

8.58 (Reserved)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	278/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

8.59 RUBBER-ROLLER-K

Description	Part Number	Remarks
RUBBER-ROLLER-K	PA03450-K970	Includes:
		Description Quantity Refer to:
		ROLLER-ASSY1B 2 Photo A
		ROLLER-ASSY2B 1 Photo B
		ROLLER-ASSY3B 1 Photo C
		ROLLER-ASSY4B 5 Photo D
		PINCH-ASSY1B 4 Photo E
		PINCH-ASSY2B 1 Photo F
		PINCH-ASSY3B 1 Photo G
		PINCH-ASSY4B 3 Photo H
		UPPER-GUIDE1B 1 Photo I
		ADJUST-CHART 10 sheets
		Sheet (*1) 1
PACK-LIST 1		

*1 Sheet "Please be aware of the followings"



Photo A ("1" is marked on an end of the roller shaft)



Photo B ("2" is marked on an end of the roller shaft)



Photo C ("3" is marked on an end of the roller shaft)



Photo D ("4" is marked on an end of the roller shaft)



Photo E

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			



Photo F



Photo G



Photo H (Red line is marked on the shaft)



Photo I

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	280/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

8.60 FEED-ROLLER-K

Description	Part Number	Remarks
FEED-ROLLER-K	PA03450-D975	Includes:
		Description Quantity Refer to:
		ROLLER-ASSY1B 2 Photo A
		ROLLER-ASSY2B 1 Photo B
		ROLLER-ASSY3B 1 Photo C
		ROLLER-ASSY4B 5 Photo D
ADJUST-CHART 10 sheets		



Photo A ("1" is marked on an end of the roller shaft)



Photo B ("2" is marked on an end of the roller shaft)



Photo C ("3" is marked on an end of the roller shaft)

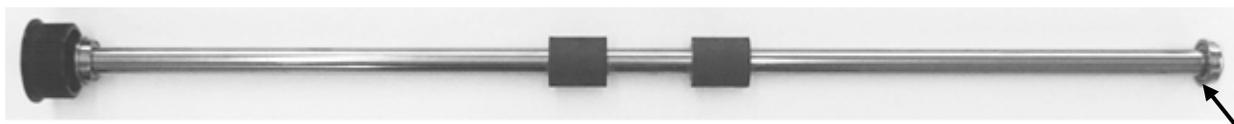


Photo D ("4" is marked on an end of the roller shaft)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	281/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Chapter 9 Imprinter

9.1 Specifications

9.1.1 Printing Specifications

(1) fi-590PRF (Pre-Imprinter)

This option is installed in the Upper unit of the scanner to print on the front side of the documents before being scanned. The printing will be scanned as part of the front side image.

Item	Specification			
Printing Method	Thermal inkjet printing			
Print Timing	Pre printing (front side)			
Printing Characters	Alphabet : A to Z, a to z Numeric Characters : 0, 1 to 9 Symbols : ! " \$ # % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { } ~			
Maximum number of characters per line	40 characters (When using 8 digits counter: 43 characters)			
Print orientation	Normal: 0°, 180° (horizontal orientation), 90°, 270° (vertical orientation) Narrow: 0°, 180° (horizontal orientation),			
Character size	Normal: Height 2.91mm × width 3.03mm / 0.1146 × 0.1193 in (horizontal orientation) Height 3.03mm × width 2.91mm / 0.1193 × 0.1146 in (vertical orientation) Narrow: Height 2.91mm × width 1.71mm / 0.1146 × 0.0673 in (horizontal orientation)			
Character pitch	3.79mm / 0.1492in (Normal), 2.46mm / 0.0968in (Narrow)			
Font style	Regular, Bold			
Character width	Normal, Narrow			
	Character width	Print orientation	Font style	Printing
	Normal	Horizontal	Regular	Available
			Bold	Available
		Vertical	Regular	Available
			Bold	Available
	Narrow	Horizontal	Regular	Available
			Bold	NOT Available
		Vertical	Regular	NOT Available
			Bold	NOT Available
Document that can be scanned	Documents supported by fi-5900C For the details, refer to Section 1.2 "Document Specification".			
	 <p>Documents with glossy surface such as thermal paper, thermal transfer paper, coated paper, and art paper take longer time for the ink to dry and may cause poor print quality. The imprinter must be cleaned more frequently if you use these types of papers.</p>			

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	282/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

Item	Specification
Printing area	<p style="text-align: right;">Unit: mm</p> <p>* The document stains with ink when printing in the shaded areas (shown in the illustration). Therefore, correct printing operations in such areas are not guaranteed.</p>
Character position accuracy	Vertical: ± 4 mm (at reference position) Horizontal: ± 4 mm (at reference position)
Ambient condition	Temperature: 10 to 35°C (50 to 95°F), Humidity: 20 to 80%

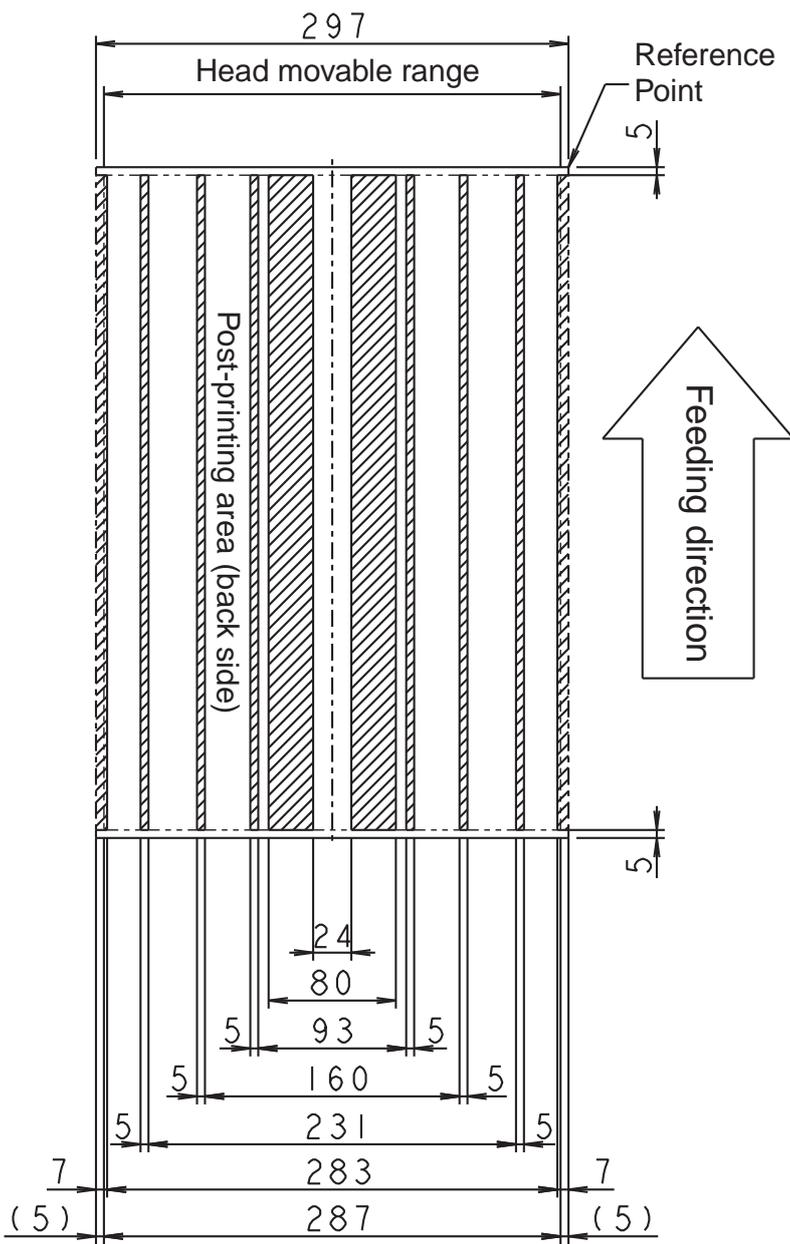
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 283/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	283/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

(2) fi-590PRB (Post-Imprinter)

This option is installed in the Upper unit (document ejected area) of the scanner to print on the backside of the documents after being scanned. The printing will not appear as part of the scanned backside image.

Item	Specification			
Printing Method	Thermal inkjet printing			
Print Timing	Post printing (Backside)			
Printing Characters	Alphabet : A to Z, a to z Numeric Characters : 0, 1 to 9 Symbols : ! " \$ # % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { } ~			
Maximum number of characters per line	40 characters (When using 8 digits counter: 43 characters)			
Print orientation	Normal: 0°, 180° (horizontal orientation), 90°, 270° (vertical orientation) Narrow: 0°, 180° (horizontal orientation)			
Character size	Normal: Height 2.91mm × width 3.03mm / 0.1146 × 0.1193 in (horizontal orientation) Height 3.03mm × width 2.91mm / 0.1193 × 0.1146 in (vertical orientation) Narrow: Height 2.91mm × width 1.71mm / 0.1146 × 0.0673 in (horizontal orientation)			
Character pitch	3.79mm / 0.1492in (Normal), 2.46mm / 0.0968in (Narrow)			
Font style	Regular, Bold			
Character width	Normal, Narrow			
	Character width	Print orientation	Font style	Printing
	Normal	Horizontal	Regular	Available
			Bold	Available
		Vertical	Regular	Available
			Bold	Available
	Narrow	Horizontal	Regular	Available
			Bold	NOT Available
		Vertical	Regular	NOT Available
			Bold	NOT Available
Document that can be scanned	Documents supported by fi-5900C For the details, refer to Section 1.2 "Document Specification".			
	 <p>Documents with glossy surface such as thermal paper, thermal transfer paper, coated paper, and art paper take longer time for the ink to dry and may cause poor print quality. The imprinter must be cleaned more frequently if you use these types of papers.</p>			

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	284/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Item	Specification
Printing area	 <p>The diagram shows a printing area with a total width of 297 mm. A 'Head movable range' is indicated with a width of 297 mm. A 'Reference Point' is marked with a 5 mm offset. A 'Post-printing area (back side)' is shown with a width of 24 mm. The 'Feeding direction' is indicated by an upward arrow. Dimensions for the printing area are: 24 mm (shaded area), 80 mm (total width), 93 mm (width with 5 mm margins), 160 mm (width with 5 mm margins), 231 mm (width with 5 mm margins), 283 mm (width with 7 mm margins), and 287 mm (width with 5 mm margins). A note states: '* The document stains with ink when printing in the shaded areas (shown in the illustration). Therefore, correct printing operations in such areas are not guaranteed.'</p>
Character position accuracy	Vertical: ± 4 mm (at reference position) Horizontal: ± 4 mm (at reference position)
Ambient condition	Temperature: 10 to 35°C (50 to 95°F), Humidity: 20 to 80%

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 285/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	285/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

9.1.2 Consumables

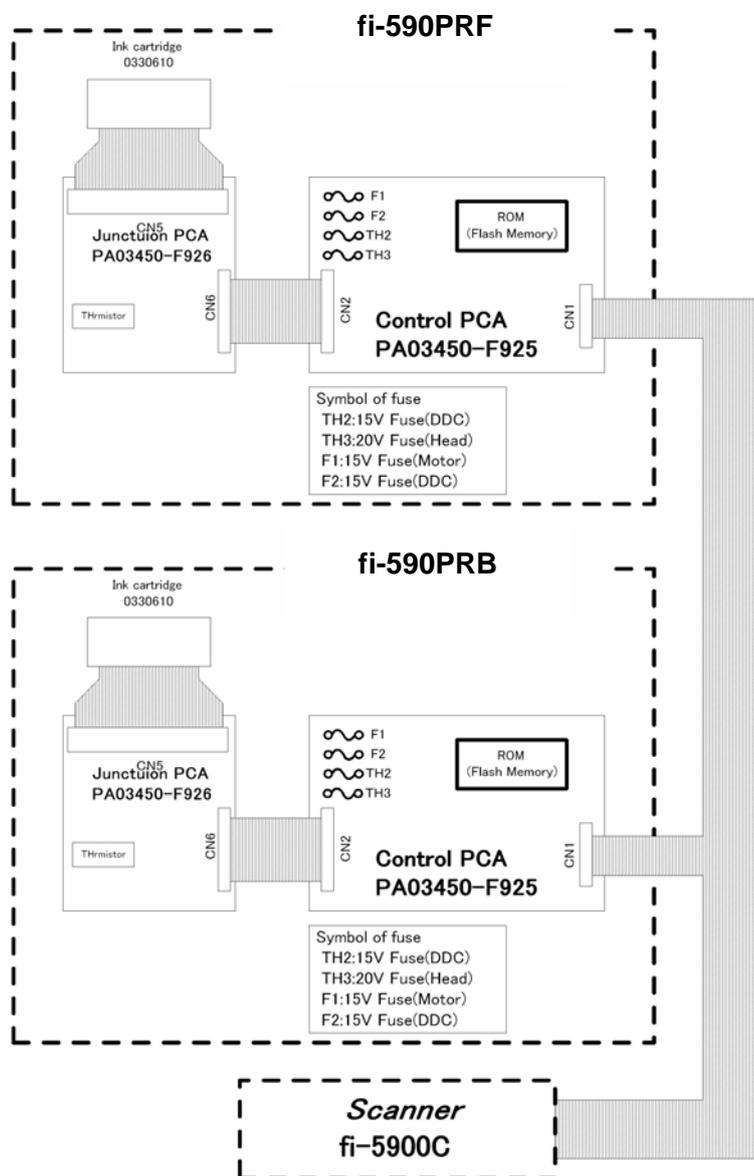
Item	Specification
Print Cartridge	<p>P/N: CA00050-0262 Color: Black Replacement Cycle: 4,000,000 characters (The number of characters may decrease depending on the font selection.)</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="text-align: center; margin-top: 20px;">  <p>Expiration date for use →</p> </div>

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	286/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

9.1.3 Block Diagram

The block diagram of the Imprinter is as follows.

Electric Component Block Diagram



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

9.2 Unpacking and Installation of the Imprinter

9.2.1 Unpacking

The package contents of the imprinters are as follows.

fi-590PRF (Pre-Imprinter)

No	Item	Qty	Note
1	Control PCA	1	
2	PRF Frame Unit	1	
3	Operator's Guide	1	
4	Installation Guide	1	
5	Print Cartridge	1	
6	Label 1	1	
7	Label Pre	1	
8	Small screws	4	
9	Paper guide	1	

fi-590PRB (Post-Imprinter)

No	Item	Qty	Note
1	Control PCA	1	
2	PRB Frame Unit	1	
3	Operator's Guide	1	
4	Installation Guide	1	
5	Print Cartridge	1	
6	Label 1	1	
7	Label Pre	1	
8	Small screws	7	
9	Picking failure prevention guide	2	
10	Printer cable	1	

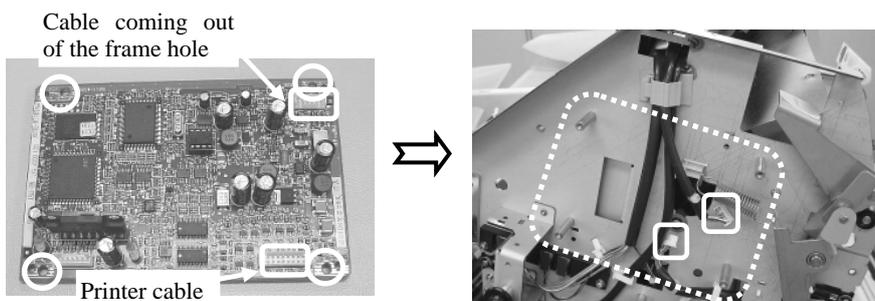
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	288/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

9.2.2 Installing and Removing the Imprinter

9.2.2.1 Installing fi-590PRF (Pre-Imprinter)

<Installation>

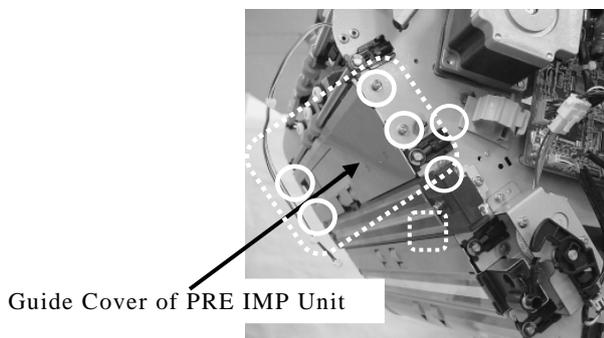
- (1) Turn OFF the main power switch of the scanner and remove the AC cable.
- (2) Referring to Section 6.5.1, remove the Hopper unit.
- (3) Referring to Section 6.6.1, remove the Front cover.
- (4) Referring to step (2) in Section 6.16.2, remove the Cover plate at right side of the Upper unit.
- (5) Remove the Cover Plate at left side of the Upper unit.
- (6) Place the Control PCA at the installed position (left of the Upper unit, dotted square in the photo lower right), tighten four (4) screws (circle in the photo below) and connect two (2) cable connectors (solid squares in the photo lower left).



- (7) Referring to step (5) of Section 6.16.5, remove the Upper unit guide 1.
- (8) Referring to how to remove Pinch roller 1 on step (13) of Section 6.16.5, remove the Pinch roller 2.

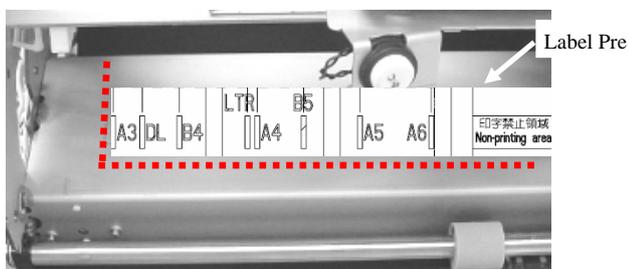
Notes:

- Pinch roller 2 is the second Pinch roller from the front of the Upper unit (ADF Cover). 9 Pinch rollers are located 1 to 9 from the front of the Upper unit.
 - Be careful! The bracket spring of Pinch roller 2 is easy to lose. Pull it forward gently.
- (9) Remove four (4) screws (circle in the photo below) that secure the Guide Cover at the installing position of the Pre-Imprinter unit (dotted square in the photo below), then remove the Guide Cover.



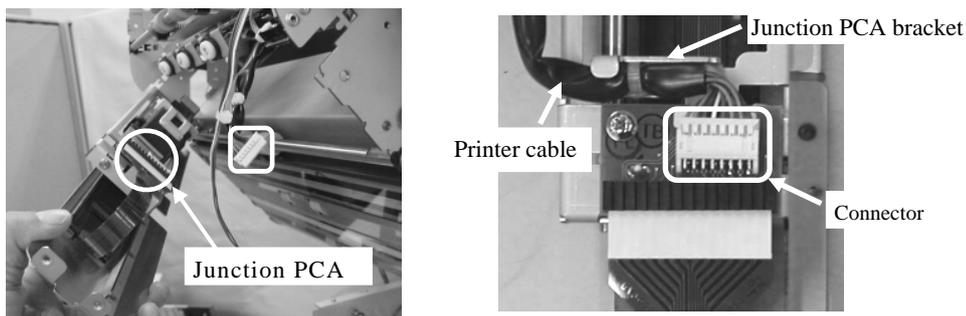
- (10) Paste the "Label Pre" on the Upper frame.

Note: Locate the "Label Pre" at the location of the dotted line in the photo below.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 289/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

- (11) Connect a connector (square in the photo below) of the printer cable into the Junction PCA of the PRF Frame Unit (circle in the photo below). Be sure that the printer cable routes as shown below in the photo on the right.



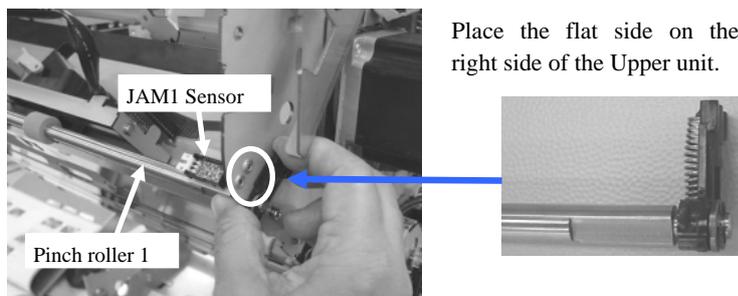
- (12) Place the PRF Frame Unit at the installed position (dotted square in the photo in step 9), tighten four (4) screws (circles in step 9).

Note: Make sure the right and left edges of the PRF Frame Unit are against the Upper frame (no gap).

- (13) Re-install the Pinch roller 2.

Notes: 03

- Place the flat side of the Pinch roller 2 on the right side of the Upper Unit when installing. If it is installed left-right reversal, U1 “Paper Jam” error (detailed code 5a) occurs.



- Be careful! The bracket spring of the Pinch roller 2 is easy to lose.

- (14) Re-install the Upper unit guide 1.

Notes:

- Hook left and right bottoms of the Upper Unit guide 1 on the Upper unit frame groove (square in the photo below).



- Make sure the right and left edges of the Upper unit guide 1 are against the Upper unit frame (no gap).

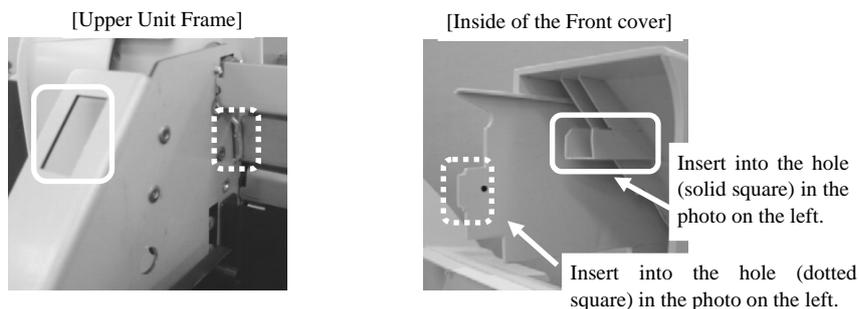
- (15) Install the Cover plates at right and left of the Upper unit.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	290/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

(16) Close the ADF cover. While the Pre-Imprinter cover is closed, install the Front Cover.

Notes:

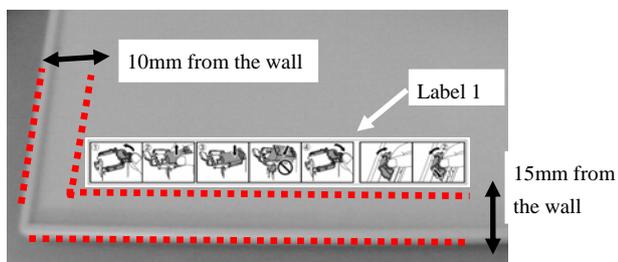
- Insert two (2) hooks (squares in the photo lower right) into the holes of the Upper unit frame.



- Press the Front Cover horizontally until to bumps.
- Route the cable of the Panel PCA through the opening in the Front Cover and connect the Panel PCA connector.

(17) Paste the Label 1 on the inside of the Pre-Imprinter cover.

Note: Align Label 1 with the dotted lines in the photo below.



(20) Install the Print Cartridge and a Paper Guide (Refer to Sections 9.2.3 and 9.2.6.)

(21) Referring to the Operation Test (Section 9.2.4), conduct test-printing.

<Removal>

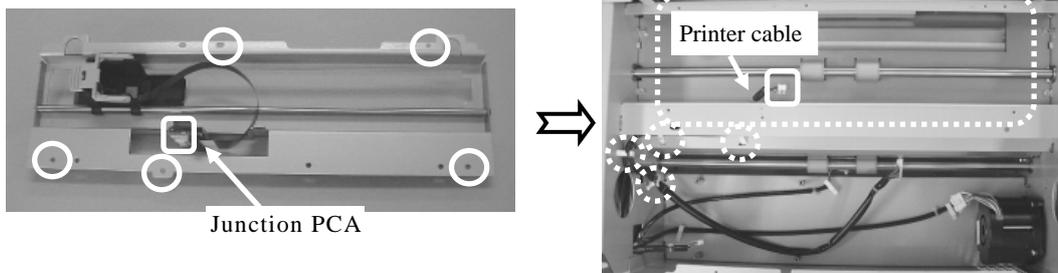
Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	291/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

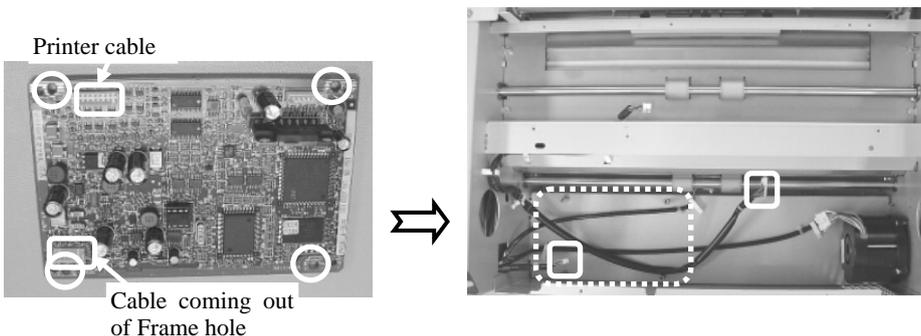
9.2.2.2 Installing fi-590PRB (Post-Imprinter)

<Installation>

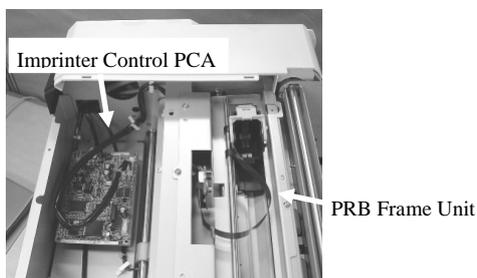
- (1) Turn OFF the main power switch of the scanner and remove the AC cable.
- (2) Referring to Section 6.6.2, remove the Top Cover.
- (3) Remove two (2) screws of the Guide Cover at the installing position of the PRB Frame Unit and remove the Guide Cover.
- (4) Place the Printer cable into four (4) clamps (dotted circles in the photo on the right below). Place the PRB Frame Unit at the position shown by the dotted square in the photo on the right below, tighten five (5) screws (solid circles in the photo on the left below) and connect the (1) printer cable connector (solid square in the photo on the left below) to the Junction PCA.



- (5) Place the Control PCA at the position shown by the dotted square in the photo on the right below, tighten four (4) screws (circles in the photo on the left below) and connect the cables to two (2) connectors (solid squares in the photo on the right below).

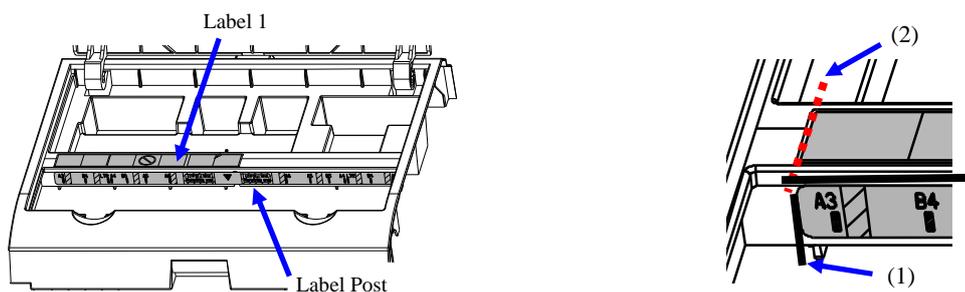


- (6) After installing the PRB Frame Unit and Control PCA, re-install the Top Cover.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 292/327
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	292/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(7) Paste the Label 1 and Label Post on the Top Cover. Align the left and top edges of the Label Post to the Top cover lines (bump) (1) and paste. Then align the left edge of the Label 1 to left edge of the Label Post and paste (2).



(8) Install the Print Cartridge and two (2) Paper Guides (Section 9.2.3).
 (9) Referring to the Operation Test (Section 9.2.4), conduct test-printing.

<Removal>

Follow the procedure above in reverse order.

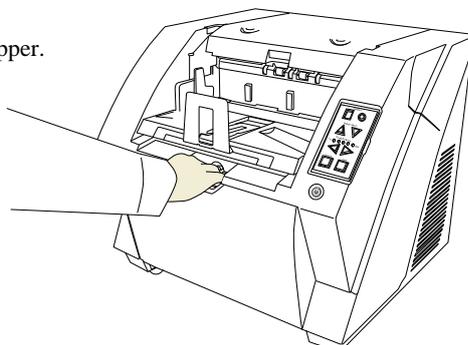
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	293/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

9.2.3 Installing the Print Cartridge

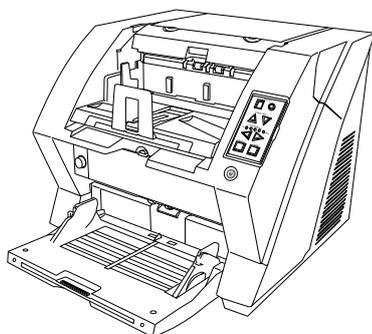
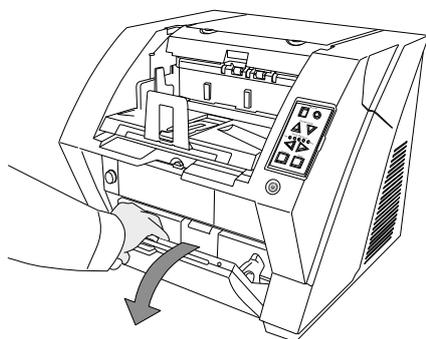
Install the print cartridge as follows:

fi-590PRF (Pre-Imprinter)

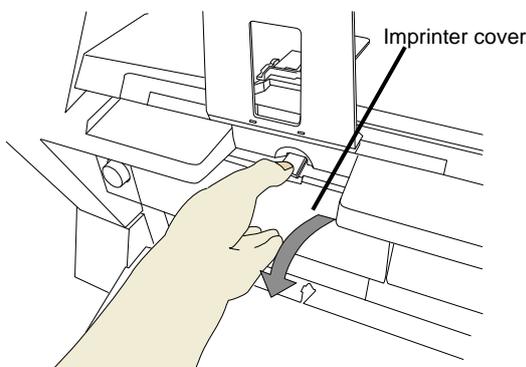
1. Confirm that the scanner is turned off.
2. Hold the blue part located on the center of the Hopper.



3. Flip down the Hopper gently.

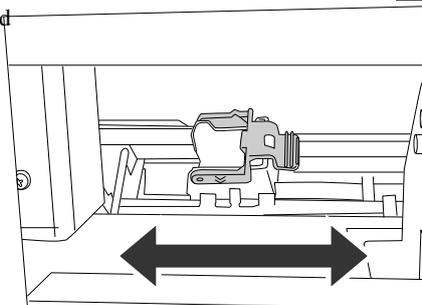


4. Open the imprinter cover.

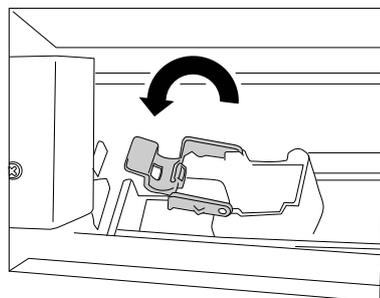


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6	CUST.	
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	294/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

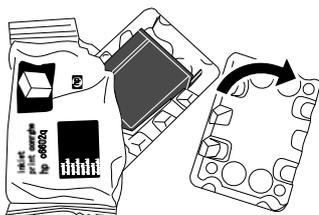
5. Move the Print cartridge holder to where the cartridge can be inserted easily.



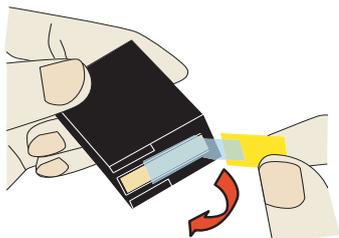
6. Open the print cartridge holder by rotating the lever to the left.



7. Remove the new print cartridge from its pouch.



8. Remove protective tape from the print cartridge.

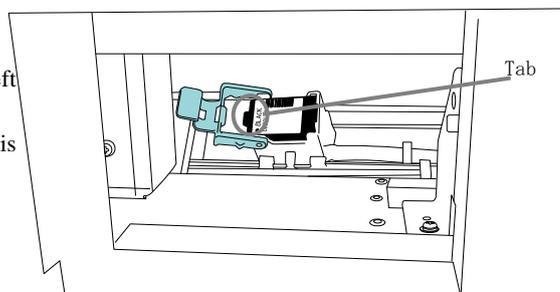
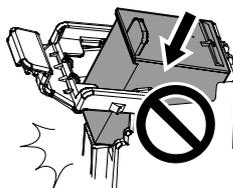


Note: Do not touch the metal part of the cartridge nor re-install the tape.

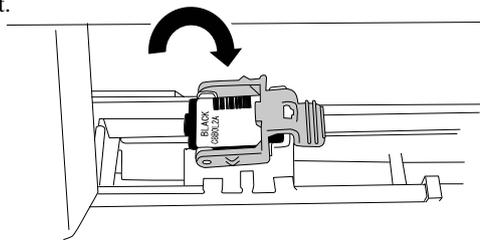
9. Insert the Print cartridge into the holder.

NOTES:

- Insert the cartridge with its Tab positioned toward the left side and install it.
- Note that the cartridge cannot be inserted properly if it is inclined.



10. Close the Print cartridge holder, by rotating the lever to the right.

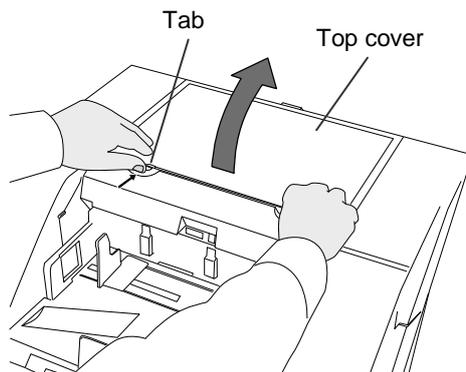


11. Close the imprinter cover.

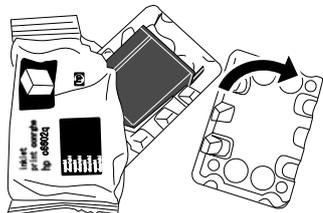
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	295/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

fi-590PRB (Post-Imprinter)

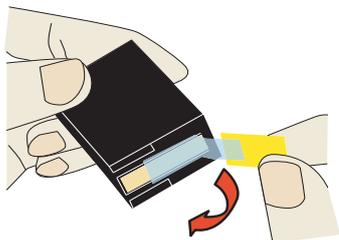
1. Confirm that the scanner is turned off.
2. Press the tabs on the left and right sides of the Top cover and lift to open the Top cover.



3. Remove the new print cartridge from its pouch.

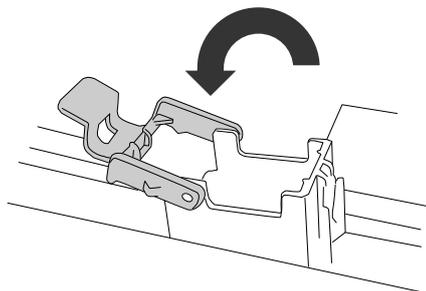


4. Remove protective tape from the print cartridge.



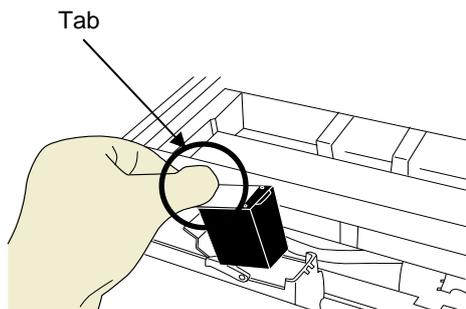
NOTE: Do not touch the metal part of the cartridge nor put the re-install the tape.

5. Open the print cartridge holder, by rotating the lever to the left.



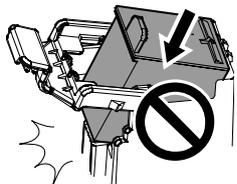
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	296/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

6. Insert the print cartridge into the holder.

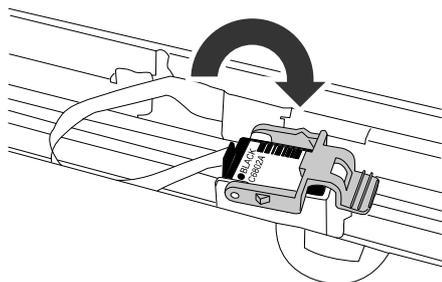


NOTES:

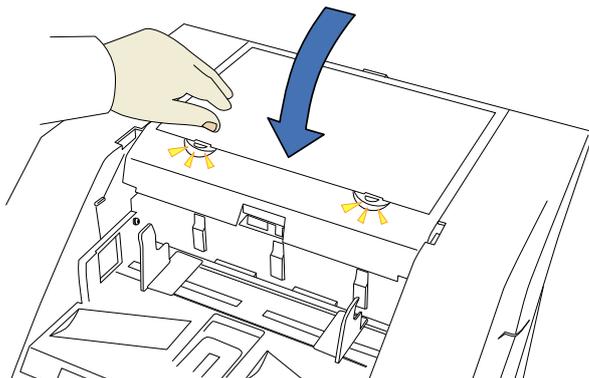
- Insert the cartridge with its Tab positioned toward left side and install it.
- Be careful not to let the print cartridge touch or catch on to the print circuit film.
- Note that the cartridge cannot be inserted properly if it is inclined.



7. Close the Print cartridge holder, by rotating the lever to the right.



8. Close the Top cover and press lightly until the tabs lock in place.



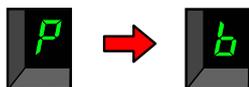
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	297/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

9.2.4 Operation Test

After installing the imprinter and Print cartridge, test to see if printing can be performed using the Offline Print Test mode.

<Procedure>

1. Turn the scanner on while pressing one of the [Hopper Height] buttons (△ or ▽) on the operator panel.
NOTE: Keep pressing the [Hopper Height] button.
2. Release the [Hopper Height] button when the Function Number Display changes from [P] to [b].



3. Place a blank sheet of paper on the Hopper.

NOTES:

- Use A4 or Letter sized paper. If the size is smaller than A4 or Letter, printing may not be completed.
- Confirm that the Print Cartridge is positioned within the document width.

4. Press the [Scan] button to test.

➔ Paper will be fed into the ADF, and the Imprinter will print out the Print Test Characters starting at 5mm (±4mm) from the paper's edge.

Print test patterns are as follows.

Test pattern 1 (Horizontal):

ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^_`00000000

Test pattern 2 (Horizontal):

abcdefghijklmnopqrstuvwxy{~}~ 00000000

Test pattern 3 (Horizontal):

!'"#\$%&()*+,-./0123456789;:<=>?@00000000

Test pattern 4 (Vertical):

ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^_`00000000

Test pattern 5 (Vertical):

abcdefghijklmnopqrstuvwxy{~}~ 00000000

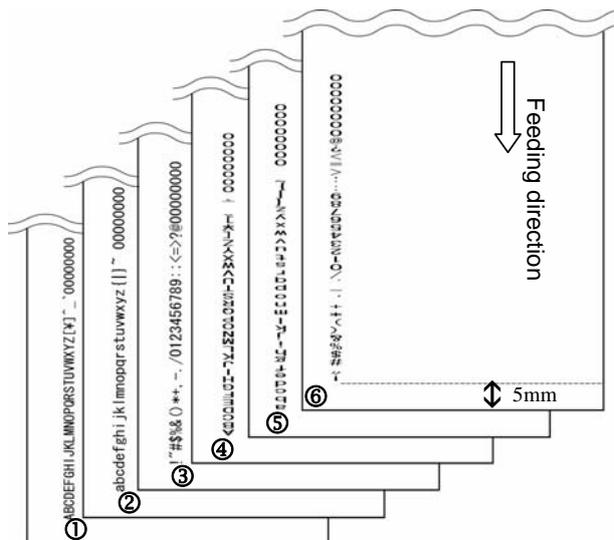
Test pattern 6 (Vertical):

!'"#\$%&()*+,-./0123456789;:<=>?@00000000

When multiple sheets of documents are placed in the Hopper, the Test Print repeats patterns from 1 through 6.

- The numbering data portion "00000000" increments by one with each sheet of paper.
- The Test patterns are repeated when each pattern is finished printing.
- When both of the Pre-Imprinter and the Post-Imprinter are installed, the printer alternate printing.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	298/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			



Test pattern print sample

5. To end the Offline Print test mode, turn off the Scanner with the main power switch.

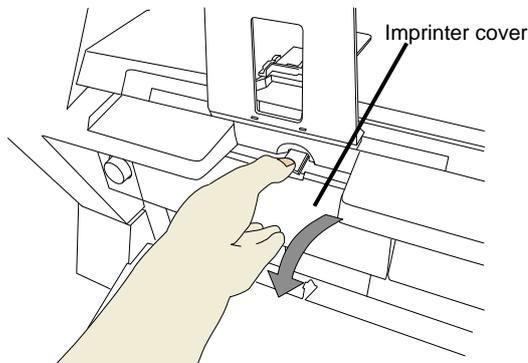
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	299/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

9.2.5 Positioning the Print Cartridge

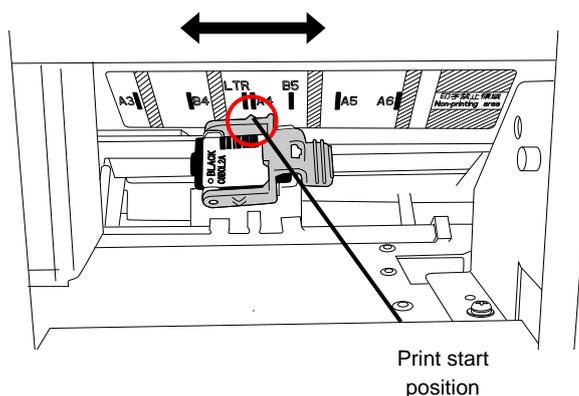
To Position the print cartridge for printing:

fi-590PRF (Pre-Imprinter)

1. Open the imprinter cover.



2. Place the print alignment mark to the position where you want to print.



NOTES:

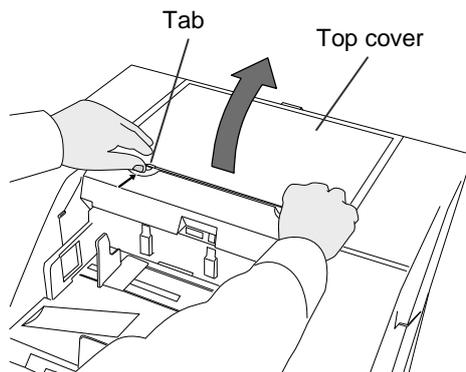
- The small “▲” protruding from the side of the print cartridge holder indicates the print start position on the page.
- Above the print cartridge tray are document paper size markings; use them to adjust for printing positions.
- Do not set the print cartridge within the printing prohibited area; otherwise, the document may stain with ink.
- Place the actual document in the Hopper and confirm that the print cartridge is positioned within the document’s width.

3. Close the imprinter cover.

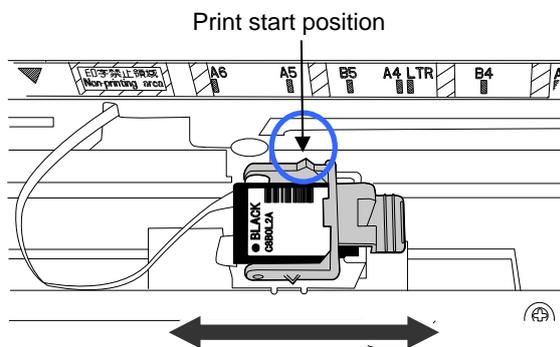
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	300/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

fi-590PRB (Post-Imprinter)

1. Press the tabs on the left and right sides of the Top cover, and lift to open the Top cover.



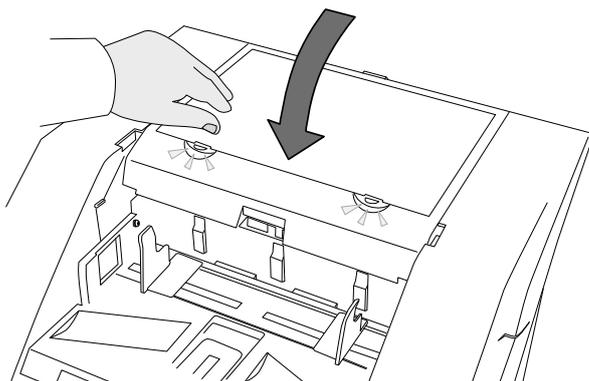
2. Place the print alignment mark to the position where you want to print.



NOTES:

- The small “▲” protruding from the side of the print cartridge holder indicates the print start position on the page.
- Next to the print cartridge tray are document paper size markings; use them to adjust for printing positions.
- Do not set the print cartridge within the printing prohibited area, otherwise, the document may stain with ink
- Place the actual document in the Hopper and confirm that the print cartridge is positioned within the document’s width.

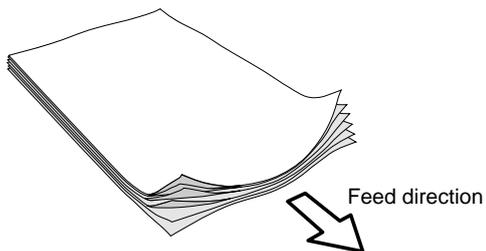
3. Close the Top cover and press lightly until the tabs lock in place.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	301/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai							

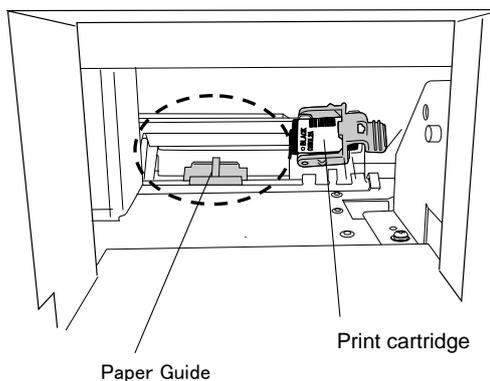
9.2.6 How to Use the Paper Guides

Use the Paper Guides to prevent paper jams due to curling of the edges, as shown below.



fi-590PRF (Pre-Imprinter)

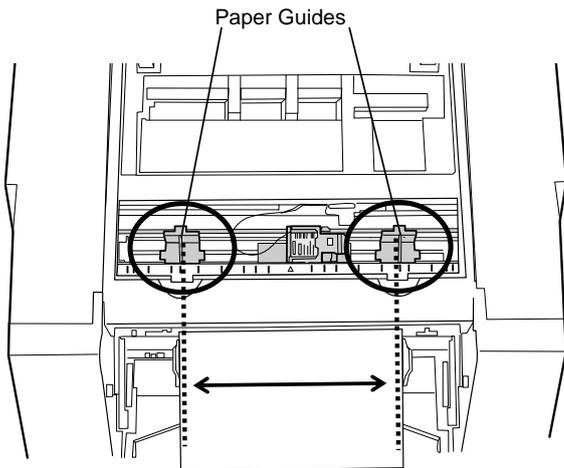
Set the print cartridge to the right side and place the Paper Guide in the left area as shown in the illustration below.



fi-590PRB (Post-Imprinter)

As shown below, place the Paper Guides at the ends where the paper edges will pass through.

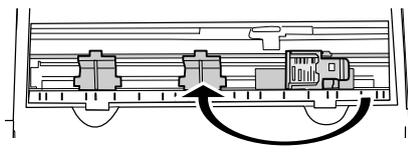
1. Load the document on the scanner.
2. Open the Top cover.
3. Slide the Paper Guides to the left and right page edges.



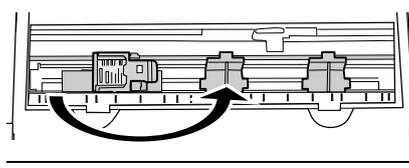
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL						
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.								
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	302/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.						T.Anzai		

Note: When you wish to print on the near the edges of a wide width paper, remove the Paper Guide in order to open space for the Print Cartridge, and attach it at the center.

For Right Side Edge Printing



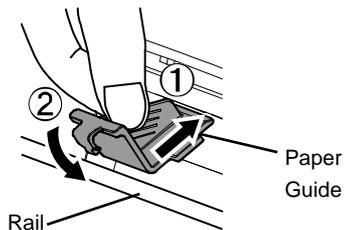
For Left Side Edge Printing



Be careful not to let the Paper Guide touch or catch onto the print circuit film.

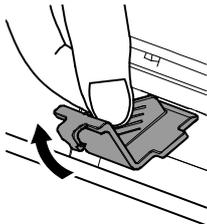
<To Attach the Paper Guide>

As shown in the illustration below, place the Paper Guide on the rail (①), and push the guide's hook to engage it on to the rail (②)



<To Remove the Paper Guide>

As shown below, hold the Paper Guide and pull upward to unhook it.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	303/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

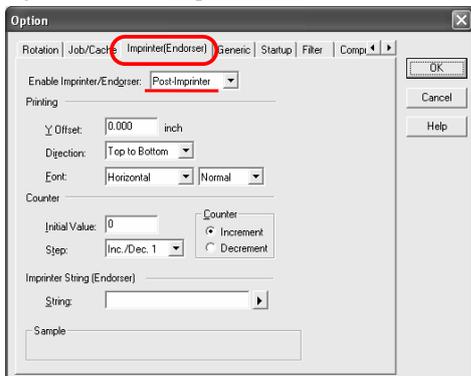
9.2.7 Print Setup

You can configure the settings for the imprinter by using the scanner driver dialog box.

FUJITSU TWAIN driver (Example)

Click [Option] button.

In [Option] dialog box, choose [Imprinter (Endorser)] tab and configure the Imprinter settings.



Available items are:

- Y offset (Vertical printing position)
- Font orientation (vertical, horizontal)/ width (normal/bold/narrow)
- Strings definition (Max. 40 characters)
- Counter Setup (column, increment/decrement, step)

For the details, refer to “FUJITSU TWAIN 32 Scanner Driver User’s Guide” or “TWAIN Driver Help”

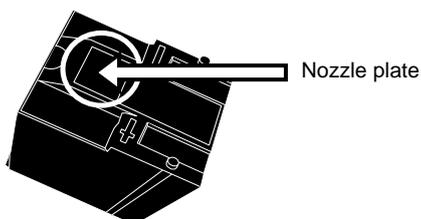
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	304/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

9.3 Cleaning

9.3.1 Cleaning the Print Cartridge

Poor quality prints can occur due to blocked ink emission holes in the nozzle. Leaving the imprinter unused for long periods can also cause emission holes to become blocked. When the emission holes are blocked, clean the nozzle surface of the print cartridge.

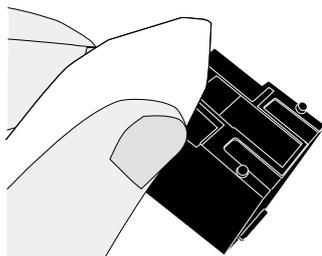
1. Turn off the Scanner.
2. Remove the Print Cartridge. (Refer to Section 9.4.1.)



NOTE: When cleaning, be careful not to touch the nozzle plate or the contact parts of the cartridge directly by hand.

3. Gently wipe any dirt and stains off the nozzle surface.

NOTE: For cleaning, use a dry lint-free cloth (DO NOT use tissue), and gently wipe any dirt and stains off the nozzle surface.



4. Make sure that all dirt and stains are removed, before installing the Print Cartridge. (Refer to Section 9.4.1.)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	305/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada				APPR.	T.Anzai

9.3.2 Cleaning the Imprinter

As the fi-590PRF prints the number on a document before reading operation, ink can splatter over the glass and paper path of the Upper transport unit, and in the vicinity of the print cartridge holder.

In case of the fi-590PRB, ink may splatter in the vicinity of the print cartridge.

We recommend you to clean the scanner after 5000 sheets scanning to avoid smudges on the scanned image. Note that the required cleaning cycle may vary depending upon document type to be scanned.

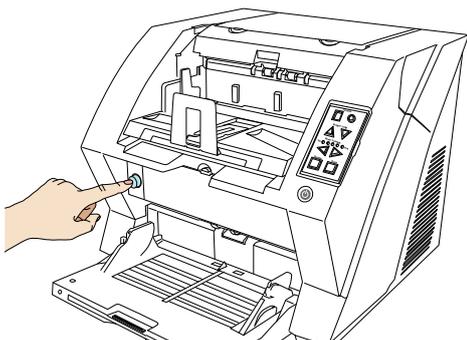
More frequent cleaning may be required when printing a document on which ink does not easily dry.



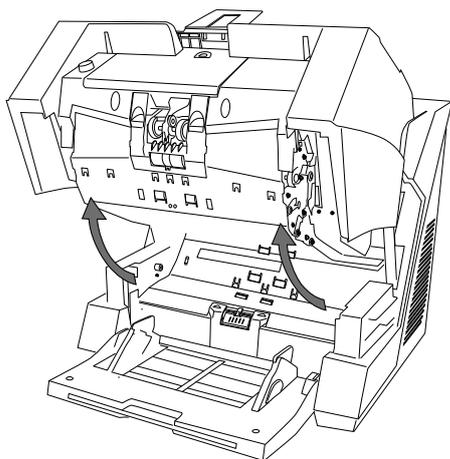
When cleaning, turn off the scanner power, and unplug the power cable from the outlet. If cleaning is done with power turned on, it may cause electric shock or imprinter failure.

NOTE: For cleaning, use a dry lint-free cloth (DO NOT use tissue), and gently wipe any dirt and stains off the nozzle surface.

1. Turn off the Scanner.
2. Remove the print cartridge. (Refer to Section 9.4.1.)
3. Press the ADF cover open button.



⇒The cover slowly opens.

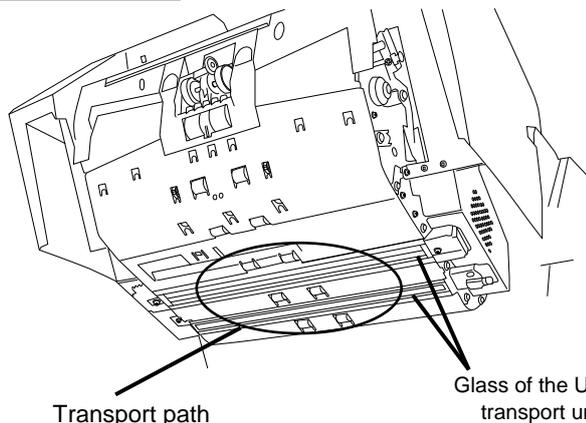


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	306/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.				

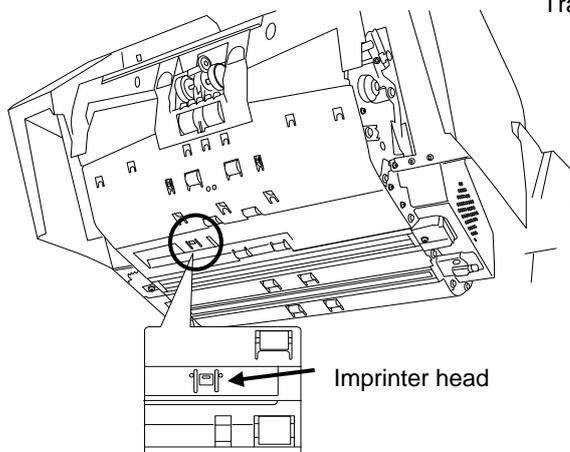
4. Wipe the following parts using a cloth moistened with ethyl alcohol or isopropyl alcohol.

NOTE: For details on cleaning the scanner, refer to Section 3.2.

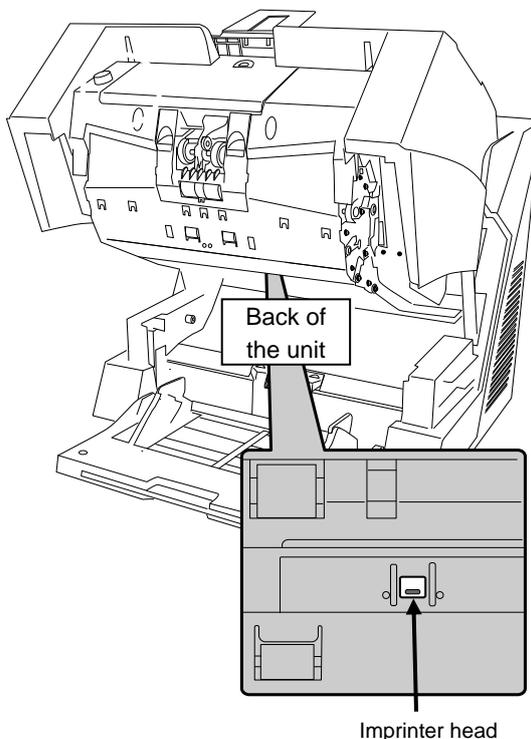
fi-590PRF --- Glass on Upper transport unit and Transport path



fi-590PRF --- Bottom of the print cartridge

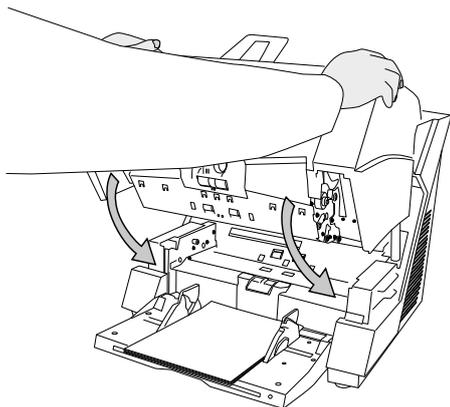


fi-590PRB --- Back of the unit



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	307/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

5. Hold the ADF cover with both hands and press down slowly to close.



When closing the ADF, be sure nothing is left inside of the scanner.
Be careful not to pinch your fingers.

6. Reinstall the print cartridge. (Refer to Section 9.4.1.)

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	308/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.			T.Anzai	

9.4 Replacing Consumables

9.4.1 Replacing the Print Cartridge



Make sure that you turn off the scanner power and unplug the power cable from the outlet.
If the cartridge replacement is done with power turned on, it may cause electric shock or imprinter failure.

NOTES:

- When the following message appears, replace the Print Cartridge as soon as possible.

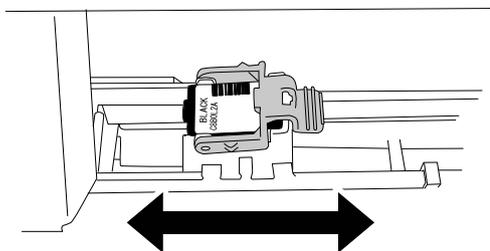
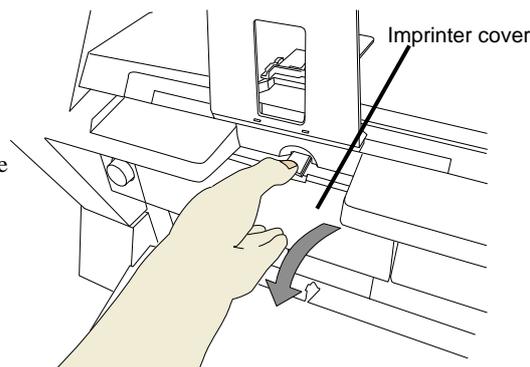


- If you continue to print without replacing the cartridge, your print output will continue to appear lighter and lighter.

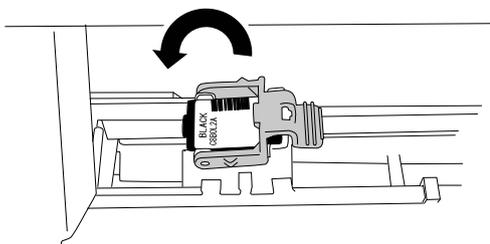
Replace the Print Cartridge as follows:

fi-590PRF (Pre-Imprinter)

1. Turn off the Scanner.
2. Open the imprinter cover.
3. Move the Print cartridge holder to where the cartridge can be removed easily.

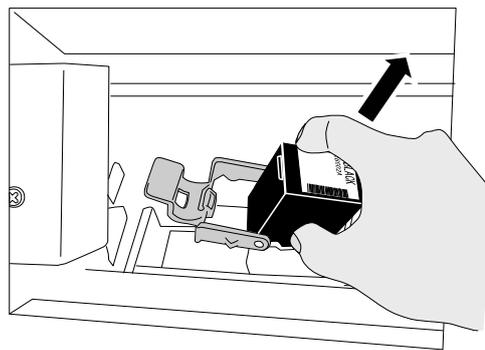


4. Open the Print cartridge holder by rotating the lever to the left.

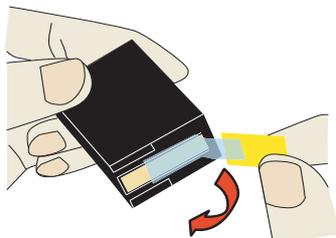


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	CUST.
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	309/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

5. Remove the Print cartridge from the holder.

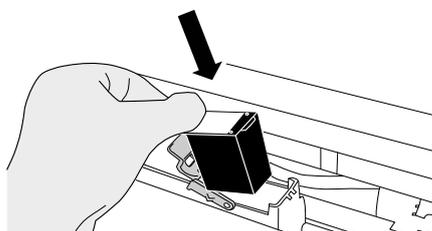


6. Take the new Print Cartridge out of its pouch and detach the protective tape from the Print Cartridge.



NOTE: Do not touch the metal part of the cartridge nor re-install the tape.

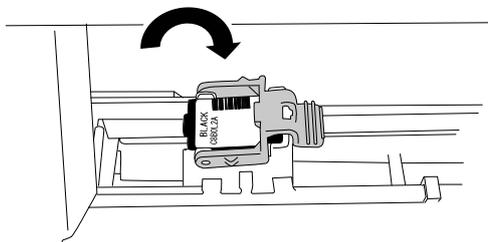
7. Insert the Print Cartridge.



NOTES:

- Insert the cartridge with its Tab positioned toward the left side and install it.
- Be careful not to let the print cartridge touch or catch on to the print circuit film.

8. Close the Print cartridge holder, by rotating the lever to the right.



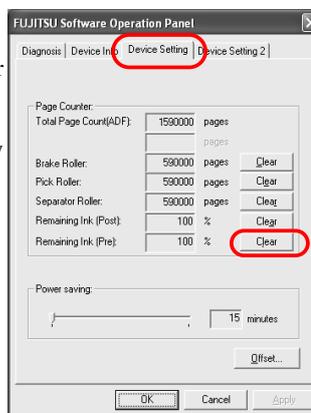
9. Close the imprinter cover.

10. Reset the Ink Remain Counter.

NOTE: You must reset the Ink Remain Counter whenever you replace the print cartridge.

- ① On the [Start] menu, select [Programs]-[Scanner Utility for Microsoft Windows]-[Software Operation Panel].
- ② Select the [Device Setting] tab.
- ③ Click the [Clear] button at the [Remaining Ink] button.

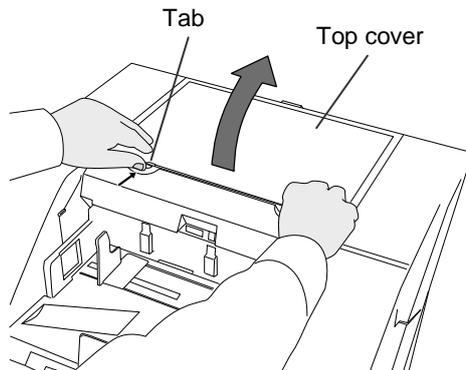
→The Ink remain counter will reset to 100%.



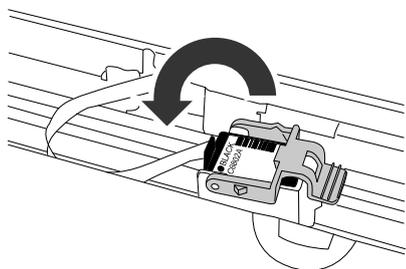
13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	310/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

fi-590PRB (Post-Imprinter)

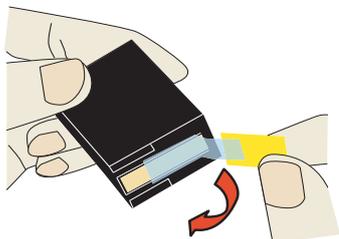
1. Confirm that the scanner is turned off.
2. Press the tabs on the left and right sides of the Top cover and lift to open the Top cover.



3. Open the Print cartridge holder by rotating the lever to the left.

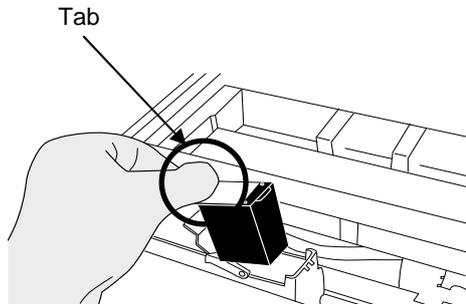


4. Remove the Print cartridge from the holder.
5. Take the new Print Cartridge out of its pouch and detach the protective tape from the Print Cartridge.



NOTE: Do not touch the metal part of the cartridge nor re-install the tape.

6. Insert the Print Cartridge.

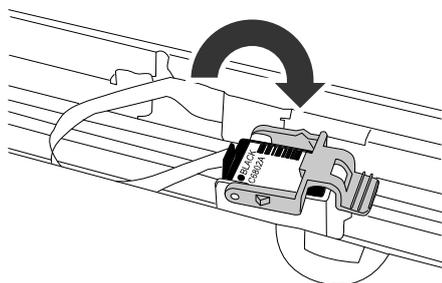


13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
						DRAW. No.	P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	311/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

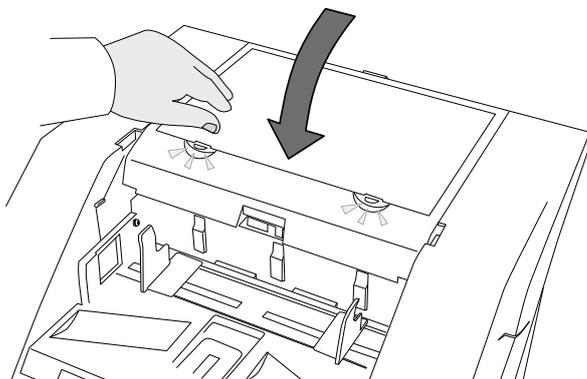
NOTES:

- Insert the cartridge with its Tab positioned toward the left side and install it.
- Be careful not to let the print cartridge touch or catch on to the print circuit film.

7. Close the Print cartridge holder, by rotating the lever to the right.



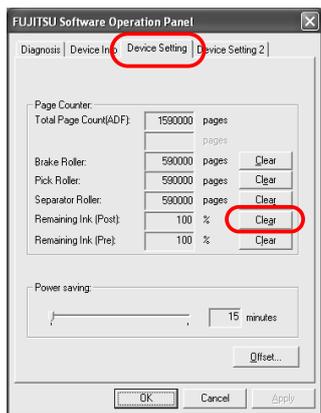
8. Close the Top cover and press lightly until it is fixed with the tabs.



9. Reset the Ink Remain Counter.

NOTE: You must reset the Ink Remain Counter whenever you replace the print cartridge.

- ① On the [Start] menu, select [Programs]-[Scanner Utility for Microsoft Windows]-[Software Operation Panel].
- ② Select the [Device Setting] tab.



- ③ Click the [Clear] button at the [Remaining Ink] button.
 ➔ The Ink remain counter will reset to 100%.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	312/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

9.5 Imprinter Maintenance

9.5.1 Precaution before maintenance

Preventative maintenance is recommended on the Imprinter at the following intervals

- Every 12 month, or at the periodic maintenance of the connected scanner.
- For the detailed cleaning method, refer to Section 9.4 (Daily Care).

Notes for replacement work

- Clean the location where replacement work is conducted.
- Be sure to follow the described procedures. Never loosen the non-disassembly screws.
- Avoid loss of the removed parts.
- Check the quantities and shapes of the parts after replacement.
- Follow the removal procedure in reverse order for the installation procedure.

Machine damage

Static Electricity may cause damage electronic components.

When handling any electronic component, wear a wrist strap or use a conductive mat to avoid ESD.

Injury

Be careful not to get your fingers, hair, clothes or accessories caught in a moving part. INJURY MAY OCCUR.

- * **Screws and springs may accidentally drop inside of the unit.**

It is recommended to cover the unit with a sheet of paper or cloth before beginning working.

- * **Be careful not to damage any glass parts.**

- * **Be careful not to drop any parts on the Lower unit while working on replacing parts of the Upper unit.**

9.5.2 Maintenance tools

Special tools to maintain this Imprinter are shown in the table below

No.	Tools	Remarks	When to use
1	Phillips screwdriver		M3, M4 screws
2	Small flat-blade screwdriver		Removing E ring, lever switch
3	Pliers		Removing clamps, Installing rings
4	Alcohol	Ethyl alcohol or isopropyl alcohol	Cleaning

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	PFU LIMITED		PAGE	313/327
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

9.5.3 fi-590PRF (Pre-Imprinter)

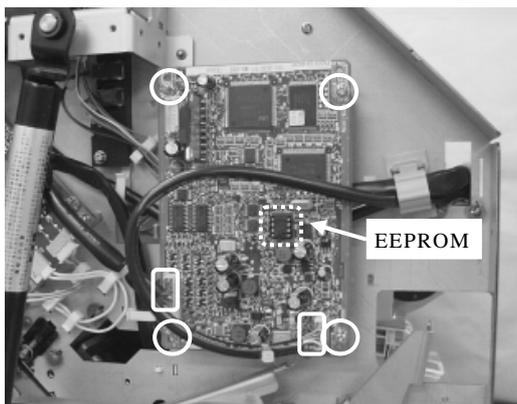
9.5.3.1 Replacing the Control PCA

 **NOTICE**

Refer to Section 9.6.1 for the part number of the replacement part.

< Removal >

- (1) Referring to Section 6.6.1, remove the Front cover.
- (2) Referring to step (2) of Section 6.16.2, remove the Cover plate on the left side of the Upper Unit.
- (3) Disconnect two (2) connectors from the Control PCA (solid square in the photo below). Remove four (4) screws (solid circles in the photo below) that secure the Control PCA and remove.



- (4) Remove the EEPROM (dotted square in the above photo) and install it on a new Control PCA. The EEPROM stores the number of characters printed on the current print cartridge.

<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	314/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

9.5.3.2 Replacing PRF Frame Unit

NOTICE

Be careful not to drop the PRF Frame Unit.
Refer the Section 9.6.3 for the part number of the replacement parts.

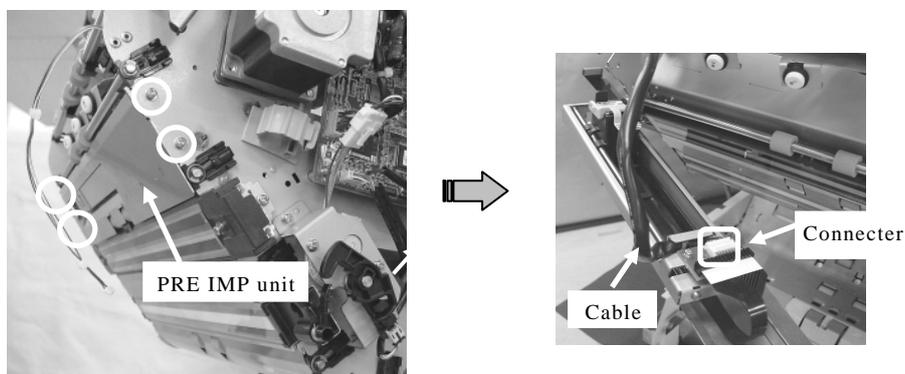
< Removal >

- (1) Referring to Section 6.6.1, remove the Front cover.
- (2) Referring to step (2) of Section 6.16.2, remove the Cover plate on the right side of the Upper unit.
Remove the Cover plate on the left side of the Upper unit in the same procedure.
- (3) Referring to step (3) of Section 5.16.5, remove the Upper unit guide 1.
- (4) Referring to how to remove Pinch roller 1 on steps (7) in Section 5.16.5, remove the Pinch roller 2.

Notes:

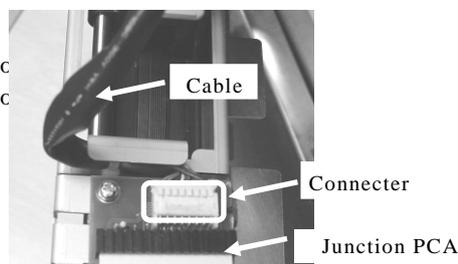
- Pinch roller 2 is the second Pinch roller from the front of the Upper unit. 9 Pinch rollers are located 1 to 9 from the front of the Upper unit.
- Be careful! The bracket spring of Pinch roller 2 is easy to lose.

- (5) Remove four (4) screws (circle in the photo below left) and remove the PRF Frame Unit.
Disconnect the (1) connector inside of the PRF Frame Unit (square in the photo below right).



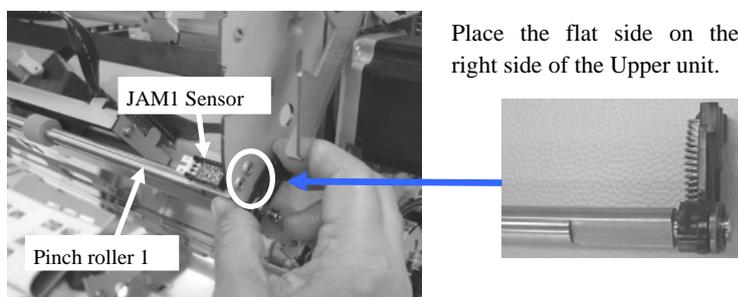
< Installation >

Follow the procedure above in reverse order.
When connecting the cable connector (square in the photo below), route the printer cable as shown in the photo below.



Notes: 04

- Place the flat side of the Pinch roller 2 on the right side of the Upper Unit when installing. If it is installed left-right reversal, U1 "Paper Jam" error (detailed code 5a) occurs.



- Be careful! The bracket spring of Pinch roller 2 is easy to lose.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 315/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	315/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

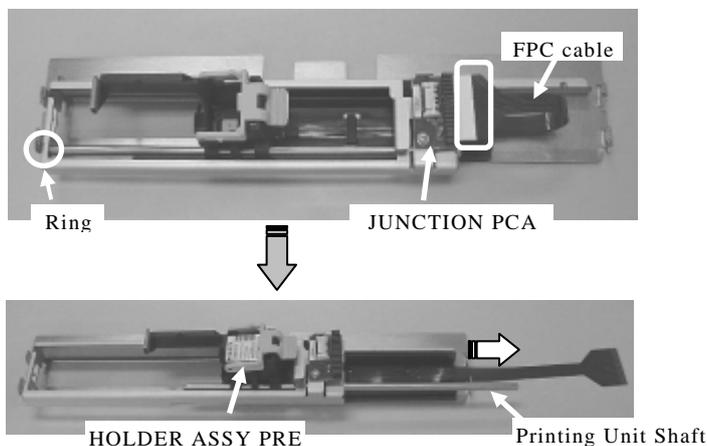
9.5.3.3 Replacing the PRF Print ASSY

NOTICE

Refer to the Section 9.6.4 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 9.5.3.2, remove the PRE Frame Unit.
- (2) Disconnect the (1) connector of FPC cable (square in the photo below) from the Junction PCA.



- (3) Unfasten the (1) ring (circle in the above photo) and remove the printing unit shaft from the PRF Frame Unit.

<Installation>

Follow the procedure above in reverse order.

Note: Be sure to insert the FPC cable firmly into the connector.

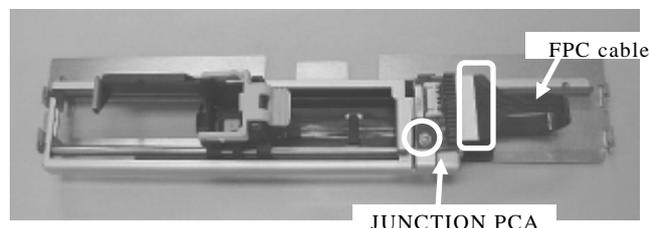
9.5.3.4 Replacing the Junction PCA

NOTICE

Refer to the Section 9.6.2 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 9.5.3.2, remove the PRF Frame Unit.
- (2) Disconnect the FPC cable from the connector (square in the above below).



- (3) Remove the (1) screw that secures the Junction PCA (circle in the photo above) and remove it.

<Installation>

Follow the procedure above in reverse order.

Note: Be sure to insert the FPC cable firmly into the connector.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

9.5.4 fi-590PRB (Post-Imprinter)

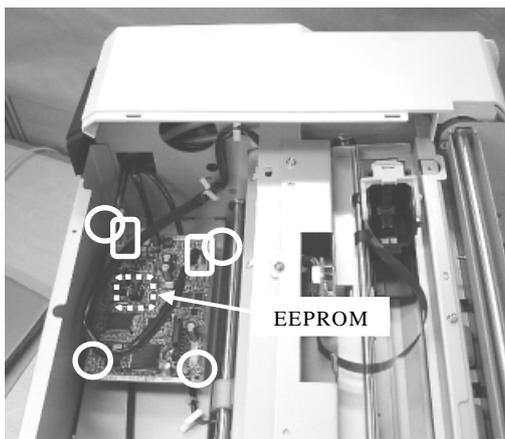
9.5.4.1 Replacing the Control PCA

NOTICE

Refer to the Section 9.6.1 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Disconnect two (2) connectors from the Control PCA (squares in the photo below).
- (3) Unscrew four (4) screws and remove the Control PCA.



- (4) Remove the EEPROM (dotted square on the photo above) from the Control PCA and install it on the new Control PCA. The EEPROM stores the number of characters printed on the current print cartridge.

<Installation>

Follow the procedure above in reverse order.

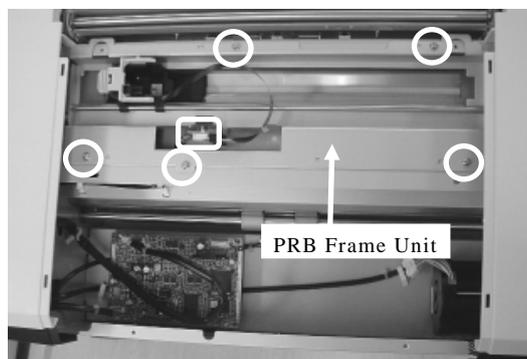
9.5.4.2 Replacing the PRB Frame Unit

NOTICE

Refer to the Section 9.6.5 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 6.6.2, remove the Top Cover.
- (2) Disconnect the (1) connector from the PRB Frame Unit (square in the photo on the right).
- (3) Remove five (5) screws (circles in the photo on the right) and remove the PRB Frame Unit.



<Installation>

Follow the procedure above in reverse order.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 317/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

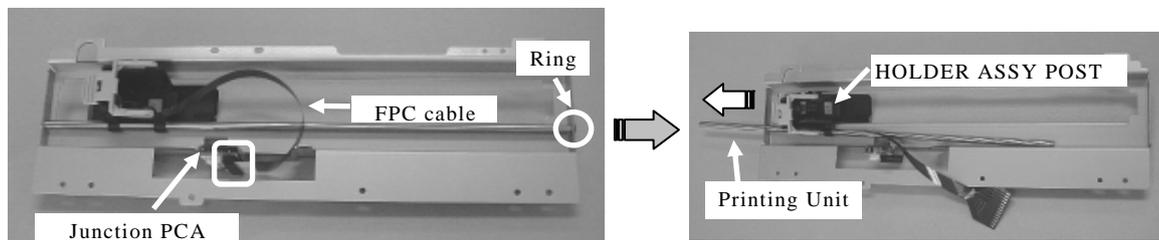
9.5.4.3 Replacing the PRB Print ASSY

NOTICE

Refer to the Section 9.6.6 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 9.5.4.2, remove the PRB Frame Unit.
- (2) Disconnect the FPC cable (square in the photo below) from the Junction PCA.



- (3) Unfasten the (1) ring that secures the printing unit shaft (circle in the photo above left) and remove the Printing Unit Shaft from the PRB Frame Unit.

<Installation>

Follow the procedure above in reverse order.

Note: Be sure to insert the FPC cable firmly into the connector.

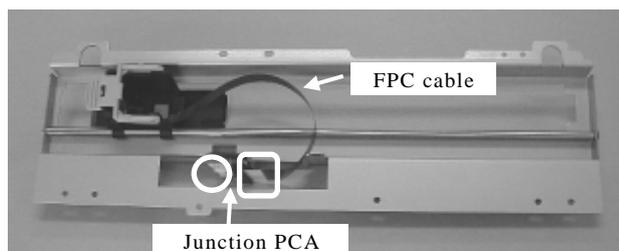
9.5.4.4 Replacing the Junction PCA

NOTICE

Refer to the Section 9.6.2 for the part number of the replacement parts.

<Removal>

- (1) Referring to Section 9.5.4.2, remove the PRB Frame Unit.
- (2) Disconnect the FPC cable from the connector (square in the photo below).



- (3) Remove the (1) screw that secures the Junction PCA (circle on the photo below) and remove it.

<Installation>

Follow the procedure above in reverse order.

Note: Be sure to insert the FPC cable firmly into the connector.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		MAINTENANCE MANUAL		
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION		PFU LIMITED		PAGE
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

9.6 Maintenance Parts for Imprinter

No.	Name	Part Number	Quantity		Referring section	Replacing Procedures	Note
1	CONTROL PCA	PA03450-F925	1		9.6.1	9.5.3.1, 9.5.4.1	
2	PRF FRAME UNIT	PA03450-D720	1		9.6.3	9.5.3.2	
3	PRF PRINT ASSY	PA03450-F780		1	9.6.4	9.5.3.3	
4	JUNCTION PCA	PA03450-F926		1	9.6.2	9.5.3.4	
5	PRB FRAME UNIT	PA03450-D730	1		9.6.5	9.5.4.2	
6	PRB PRINT ASSY	PA03450-F790		1	9.6.6	9.5.4.3	
7	JUNCTION PCA	PA03450-F926		1	9.6.2	9.5.4.4	

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL			
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No.	P1PA03450-B00X/6	CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	319/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

9.6.1 CONTROL PCA

Name	Part Number	Notes
CONTROL PCA	PA03450-F925	For optional fi-590PRB, fi-590PRF

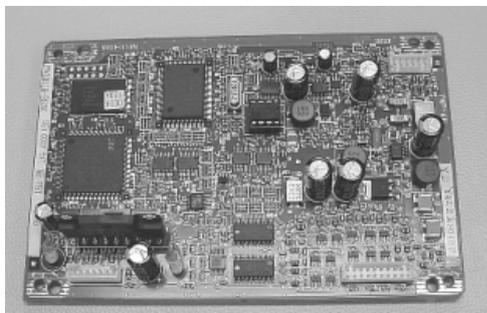


Photo 9.6.1

9.6.2 JUNCTION PCA

Name	Part Number	Notes
JUNCTION PCA	PA03450-F926	For optional fi-590PRB, fi-590PRF

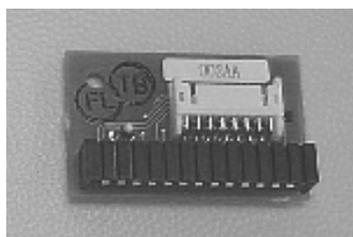


Photo 9.6.2

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL	DRAW. No. P1PA03450-B00X/6	PAGE 320/327	
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED			
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

9.6.3 PRF FRAME UNIT

Name	Part Number	Notes
PRF FRAME UNIT	PA03450-D720	For optional fi-590PRF

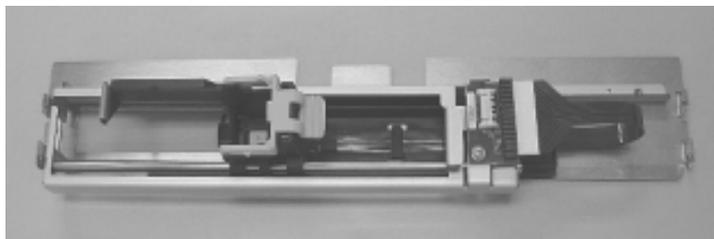


Photo 9.6.3

9.6.4 PRF PRINT ASSSY

Name	Part Number	Notes
PRF PRINT ASSY	PA03450-F780	For optional fi-590PRF Print cartridge is not included.

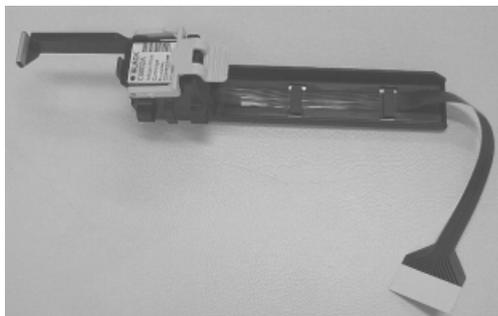


Photo 9.6.4

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL					
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.					DRAW. No.	P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.							
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	321/327				
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai							

9.6.5 PRB FRAME UNIT

Name	Part Number	Notes
PRB FRAME UNIT	PA03450-D730	For optional fi-590PRB

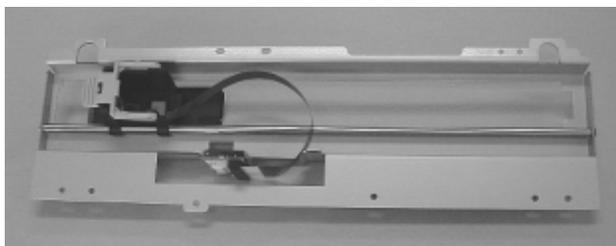


Photo 9.6.5

9.6.6 PRB PRINT ASSY

Name	Part Number	Notes
PRB PRINT ASSY	PA03450-F790	For optional fi-590PRB Print cartridge is not included.

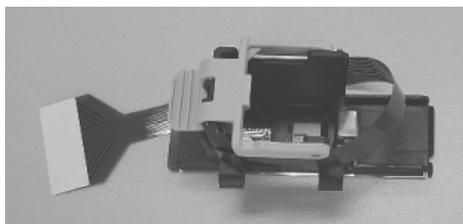


Photo 9.6.6

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	322/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

Appendix 1 Error Code List

Refer to Section 5.2 "Temporary errors & Alarms"

Item	TWAIN Driver Message	Detail code	Function No. Display	Details	Reference	
1	No paper on ADF paper chute or Hopper.	-	-	No paper on the Hopper (Hopper Empty Sensor does not detect Paper.)	5.3.10	
2	Paper jammed in the ADF	3a	U1	Paper does not reach the Imprinter Top Sensor (IMP_TP_SE). After paper reached the Pick Sensor (PICK_SE), it does not reach the Imprinter Top Sensor (IMP_TP_SE) within default pulse.	5.3.11	
3		3b		After reaching the Imprinter Top Sensor (IMP_TP_SE), paper does not exit from this sensor.		
4		31		Paper does not reach the Read Top Sensor (RED_TP_SE). After paper reached the Imprinter Top Sensor (IMP_TP_SE), it does not reach the Read Top Sensor (RED_TP_SE) within default pulse.		
5		3c		After reaching the Read Top Sensor (RED_TP_SE), paper does not exit from this sensor.		
6		3d		Paper does not reach the Reject Sensor (REJ_SE). After paper reached the Read Top Sensor (RED_TP_SE), it does not reach the Reject Sensor (REJ_SE) within default pulse.		
7		3e		After reaching the Reject Sensor (REJ_SE), paper does not exit from this sensor.		
8		34		Paper does not reach the Exit Sensor (EXT_SE). After paper reached the Reject Sensor (REJ_SE), it does not reach the Exit Sensor (EXT_SE) within default pulse.		
9		35		After reaching the Exit Sensor (EXT_SE), paper does not exit from this sensor.		
10		Paper jammed in the ADF or imprinter		5a		
11	Paper jammed in the ADF	5b		When FR7 roller is rotated, Sensor for JAM2 cannot detect rotation of the Pinch roller which is opposed to FR7.		
12		51		Jammed between Pick Roller and Separation Roller. Or jammed between Separation roller and Pick Sensor (PICK_SE).		
13		52		Jammed between Pick Sensor (PICK_SE) and Imprinter Top Sensor (IMP_TP_SE).		
14		50		Paper does not reach the Pick Sensor (PICK_SE) within specified pulse. (Paper does not reach after retrying specified paper transport.)		
15		Abnormal skew has been detected.	53		Accumulated skew over the default value is detected.	
16		Open ADF and remove the document, and then retry scanning.	54		Skew Sensors (SKEW_L3_SE or SKEW_R3_SE) on the Sensor PCA detect paper.	
17	Please remove the document left in the stacker and retry scanning.	5c		Sensor PRT ASY and Sensor LED ASY detect Stacker Full.		
18	The Multi-feed is detected.	56	U2	The second or later paper length is longer or shorter than the first paper length by more than specified value.	*2	
19		55		Paper overlapping is detected by the US Sensor.	5.3.12	
20	The ADF is open. Close the ADF and set the document on ADF paper chute or Hopper.	40	U4	Interlock switch detects the ADF cover open.	5.3.13	
21	Imprinter cover is open. Close the cover and try again.	4a		Imprinter cover is open.		
22	Print cartridge (Post-Imprinter) is not installed in the imprinter properly.	b4	U8	Print cartridge is not installed in the Post-Imprinter.	5.3.14	
23	Print cartridge (Pre-Imprinter) is not installed in the imprinter properly.	ba		Print cartridge is not installed in the Pre-Imprinter.		
24	The sensor(s) are dirty. Open the ADF and clean the sensor(s).	01	U8	Light receiving output of Pick Sensor (PICK_SE) is small.	5.3.15	
25		02		Light receiving output of Skew Sensor (SKEW_R1~R3_SE, or SKEW_L1~L3_SE) on the Sensor PCA is small.		
26		03		Light receiving output of Imprinter Top Sensor (IMP_TP_SE) is small.		
27		04		Light receiving output of Read Top Sensor (RED_TP_SE) is small.		
28		05		Light receiving output of Reject Sensor (REJ_SE) is small.		
29		06		Light receiving output of Exit Sensor (EXT_SE) is small.		
30	Pick roller error detected. Check to see if the pick roller unit is locked in the upper location, or the hopper is overloaded. Accordingly release the pick roller unit or reduce the hopper's document load.	61		Pick roller unit is locked in the upper location=Manual feed Sensor is ON (Refer to Section 3.1.12). Or Hopper is overloaded=Pick position sensor is ON.		

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	323/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada		APPR.	T.Anzai		

Refer to Section 5.2 "Temporary errors & Alarms"

Item	TWAIN Driver Message	Detail code	Function No. Display	Details	Reference
31	The brake roller or separator roller(s) malfunctioned. Check if the brake roller or separator roller(s) are installed correctly. If not, please re-install.	64	U8	Brake roller or Separator roller(s) are not installed properly. Even if the Separation roller is rotated by turning OFF the Separator brake force, Encoder PCA (Section 6.15.5) does not detect the Brake roller rotation at all.	5.3.15
32	The brake roller or separator roller(s) malfunctioned. Check if the brake roller or separator roller(s) are worn. If yes, please replace them.	65		Brake roller slips and does not rotate with the Separation roller. When turning the Separation roller by turning ON the Separator brake force, Encoder PCA (Section 6.15.5) does not detect the Brake roller rotation at all.	
33	Irregular status is detected in the scanner. <The hopper is not working properly. Please remove anything under it.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	c0	E0	Hopper table cannot be returned to the bottom.	5.3.16
34	Irregular status is detected in the scanner. <The stacker is not working properly.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	c1		Stacker cannot be lowered to the bottom.	
35	Irregular status is detected in the scanner. <Anomaly in the light intensity of ADF front side lamp.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	74	E2	Optical alarm (ADF front) CCD gain adjustment (AGC) for front side scanning optical system is unabled.	5.3.17
36	Irregular status is detected in the scanner. <Anomaly in the light intensity of ADF back side lamp.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	75	E3	Optical alarm (ADF back) CCD gain adjustment (AGC) for backside scanning optical system is unabled.	
37	Irregular status is detected in the scanner. <Anomaly in the light intensity of ADF lamps.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	72	E2	Scanning Glass is dirty (ADF front) There is an area which has small output of CCD for front side scanning CCD.	5.3.18
38	Irregular status is detected in the scanner. <Anomaly in the light intensity of ADF lamps.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	73	E3	Scanning Glass is dirty (ADF back) There is an area which has small output of CCD for backside scanning CCD.	
39	Irregular status is detected in the scanner. <Moter fuse is blown out.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	80	E4	Overcurrent of Feed motor 1	5.3.18
40		81		Overcurrent of Separation motor	
41		82		Overcurrent of Pick Solenoid	
42		88		Overcurrent of BW motor (ADF front) or Hopper motor	
43		89		Overcurrent of BW motor (ADF back), Stacker motor or Pick motor	
44		8a		Over current of Feed motor 2	
45	Irregular status is detected in the scanner. <Lamp fuse is blown out.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	84	E5	Overcurrent of Lamp	5.3.19
46	-	-	E6	Operator panel error	*1 *3 5.3.20
47	Irregular status is detected in the scanner. <EEPROM is not accessible.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	d2	E7	EEPROM error	*1 5.3.21
48	-	-	E8	SCSI power system error	*1 5.3.22
49	Irregular status is detected in the scanner. <Memory is not accessible.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	e4	E9	Image memory error	*1 5.3.23
50	Irregular status is detected in the scanner. <Memory is not accessible.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	e5	Ec	LSI1 (VDCC3) memory error	5.3.25
51		e6		LSI2 (Pisces) memory error	
52		-		Ec	

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	324/327	
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai				

rRefer to Section 5.2 "Temporary errors & Alarms"

Item	TWAIN Driver Message	Detail code	Function No. Display	Details	Reference
53	Irregular status is detected in the scanner. <Anomaly in Post-Imprinter.>	b2	EA	Post-Imprinter RAM error	5.3.24
54		b3		Post-Imprinter communication timeout error	
55	If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	b5		Post-Imprinter head error	
56		b6		Post-Imprinter EEPROM error	
57		b8		Post-Imprinter ROM error	
58	Irregular status is detected in the scanner. <Anomaly in Pre-Imprinter.>	bf		Pre-Imprinter RAM error	
59		b9		Pre-Imprinter communication timeout error	
60	If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	bb		Pre-Imprinter head error	
61		bc		Pre-Imprinter EEPROM error	
62		be		Pre-Imprinter ROM error	
63	-	-	E d	SPC (SCSI protocol controller) error, USB chip (USB protocol controller) error	5.3.26
64	Irregular status is detected in the scanner. <Anomaly in Background change operation.>	c2	EF	Background unit, upper (background switchover for front side scanning) operation error	5.3.27
65	If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	c3		Background unit, lower (background switchover for backside scanning) operation error	
66	Irregular status is detected in the scanner. <The fan has stopped.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	ec	E 11	Fan alarm	5.3.28
67	Irregular status is detected in the scanner. <Anomaly in ADF front side heater.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	92	E12	Heater (ADF front) alarm Front lamp thermistor temperature is less than 40°C for more than 10 minutes.	*4 5.3.29
68	Irregular status is detected in the scanner. <Anomaly in ADF back side heater.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	93		Heater (ADF back) alarm Front lamp thermistor temperature is less than 40°C for more than 10 minutes.	
69	Irregular status is detected in the scanner. <Anomaly in the option board> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	ee	E 15	Option Memory (IPC) Error	*1 5.3.30
70		ed	E 16	IPC timeout	5.3.31
71	Irregular status is detected in the scanner. <Imprinter fuse is blown out.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	b1	E 17	Overcurrent on Imprinter	5.3.32
72	Refer to Item No.74~78	1b	E18	US Sensor error	5.3.33
73		11		Pick Sensor (PICK_SE) error	
74	Irregular status is detected in the scanner. <Anomaly in sensor response.>	17		Skew Sensors (SKEW_R1~R3_SE, SKEW_L1~L3_SE) on the Sensor PCA error	
75		12		Imprinter Top Sensor (IMP_TP_SE) error	
76	If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	13		Read Top Sensor (RED_TP_SE) error	
77		15		Reject Sensor (REJ_SE) error	
78		14		Exit Sensor(EXT_SE) error	
79	Irregular status is detected in the scanner. <LSI is not accessible.>	e9	E 19	Anomaly in LSI1 (VDCC3)	*1 5.3.34
80	If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	ea		Anomaly in LSI2(Pisces)	

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE	fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.	DRAW. No.	P1PA03450-B00X/6		CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.				
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED		PAGE	325/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR.	T.Anzai			

Refer to Section 5.2 "Temporary errors & Alarms"

Item	TWAIN Driver Message	Detail code	Function No. Display	Details	Reference
81	Irregular status is detected in the scanner. <Anomaly in the light intensity of ADF lamps.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	86	E19	Power error	*1 5.3.34
82	Irregular status is detected in the scanner. <Anomaly of internal communication of the scanner.> If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	f0	E1A	MDC control command communication error 1	5.3.35
83		f1		MDC control command communication error 2	
84		f4		PUC control command communication error	
85	Irregular status is detected in the scanner. If the status remains after turning OFF and ON the scanner, please contact and inform your service provider about the following Sense Key and ASC code.	fa	E1A	Communication between scanner and PC is abnormal. Confirmations of interface connection and PC setting are required.	5.3.37
86		fb			
87		fc			
90	-	-	F	Flash memory check sum error	5.3.36

*1 The alarms E6 to E9, E15 and E19 are displayed 3 times before "P" during the initial processing immediately after power-on. When more than 1 of these errors occur simultaneously, they are displayed in the order of the priority described below.

E19 > E15 > E6 > E7 > E8 > E9
High priority Low priority

The scanner can perform the scan operations even if these alarms occur, but the scanner might not operate properly.

For instance, when the EEPROM is damaged, the document is scanned by default settings, which means the settings for magnification, offset and white level may not be optimum for the document to be scanned.

***2 Multifeed**

Two methods are used to detect this error. The methods for detecting multi feeds can be selected from the following. The default multi feed detection setting is "OFF".

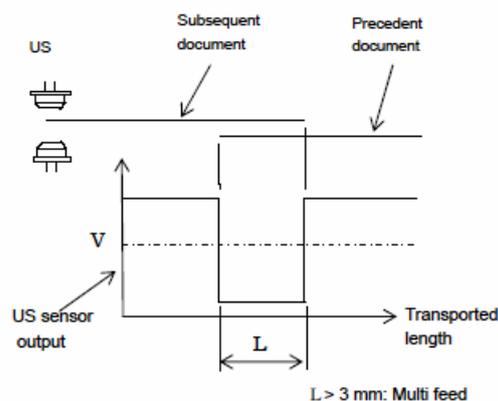
- (1) Overlapping detection by ultrasonic (Different document length)
- (2) Document length only (Constant document length)
- (3) Combination of overlapping and document length detection

Multi feed detection method can be selected both from the TWAIN driver and on the Scanner Settings (Section 3.4). The setting on the driver is recommended because it has a higher priority.

(a) Multi feed detection by ultrasonic sensors (US sensors)

The ultrasonic sensors (US sensor, see section 4.1 (1), (2)) are located above and below the document transport path. The ultrasonic wave emitted from the transmitter goes through the document and is read by the receiver. When two sheets exist between the ultrasonic sensors, the output at the receiver is lower compared to when one sheet exists. When the sensor output is consistently lower than the specified slice level (Vs) for 3mm, a multi feed is detected. (See Section 1.2.5 for document condition.)

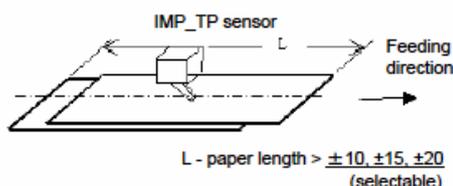
The specified slice level needs to be set by referring to Section 7.1.9 when the US sensors are replaced.



13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
						DRAW. No. P1PA03450-B00X/6	CUST.	
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	326/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			

(b) Multi feed detection by TOP sensor (length)
 Using the IMP_TP sensor, the scanner measures the length of the first document transported in the batch. The measured length is used as a standard length to be compared with the length of subsequent documents to be scanned. (See Section 1.2.5 for document condition.)

If the second document is shorter than the first one, it means the multi feed occurred at the first document. The scanner detects a multi feed when the detected paper length is larger or smaller than the standard value by $\pm 10\text{mm}$, $\pm 15\text{mm}$ or $\pm 20\text{mm}$ which is specified by the user. Immediately after a multi feed error is detected, the feeding operation stops.



***3 Operator Panel**

Operator panel alarm occurs if no EEPROM information on the Panel PCA is detected during initial processing immediately after power-on. Before the Panel PCA is replaced, EEPROM information must be saved on to the Control PCA. This information must be restored on to the new Panel PCA after replacement.

***4 Heater Alarm**

Scanning is still available even when the heater alarm occurs. Once this occurs after power-on and this alarm is canceled, this alarm will not be detected until next power OFF/ON. Image quality may be affected if the heaters are not operating properly.

13	July 30, 2009	K.Okada	A.Miyoshi	IFujioka	Refer to Revision Record on page 2.	TITLE fi-5900C, fi-590PRF, fi-590PRB MAINTENANCE MANUAL		
12	July 9, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.		DRAW. No. P1PA03450-B00X/6	CUST.
11	Mar.13, 2008	K.Okada	T.Anzai	IFujioka	Refer to Revision Record on page 2.			
Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	PFU LIMITED	PAGE	327/327
DESIG	Jan.05, 2006	K.Okada	CHECK	K.Okada	APPR. T.Anzai			