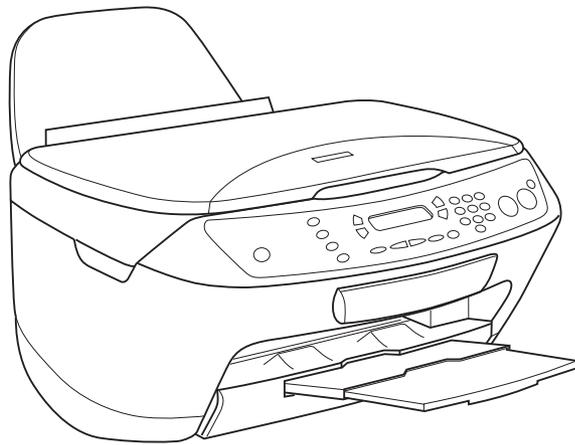


# SERVICE MANUAL Image



*Scanner · Printer · Copier*

**EPSON Stylus CX6300/CX6400/CX6500/CX6600**

**EPSON**

**TONER**  
[www.tonerplus.com.ua](http://www.tonerplus.com.ua)

SEOT03004

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# PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) damage to equipment.

**DANGER** Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

**WARNING** Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

## **DANGER**

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.
4. WHEN DISASSEMBLING OR ASSEMBLING A PRODUCT, MAKE SURE TO WEAR GLOVES TO AVOID INJURIER FROM METAL PARTS WITH SHARP EDGES.

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1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. DO NOT REPLACE IMPERFECTLY FUNCTIONING COMPONENTS WITH COMPONENTS WHICH ARE NOT MANUFACTURED BY EPSON. IF SECOND SOURCE IC OR OTHER COMPONENTS WHICH HAVE NOT BEEN APPROVED ARE USED, THEY COULD CAUSE DAMAGE TO THE EPSON PRODUCT, OR COULD VOID THE WARRANTY OFFERED BY EPSON.

# About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

## Manual Configuration

This manual consists of six chapters and Appendix.

### **CHAPTER 1. PRODUCT DESCRIPTIONS**

Provides a general overview and specifications of the product.

### **CHAPTER 2. OPERATING PRINCIPLES**

Describes the theory of electrical and mechanical operations of the product.

### **CHAPTER 3. TROUBLESHOOTING**

Describes the step-by-step procedures for the troubleshooting.

### **CHAPTER 4. DISASSEMBLY / ASSEMBLY**

Describes the step-by-step procedures for disassembling and assembling the product.

### **CHAPTER 5. ADJUSTMENT**

Provides Epson-approved methods for adjustment.

### **CHAPTER 6. MAINTENANCE**

Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

### **APPENDIX Provides the following additional information for reference:**

- Electric circuit boards components layout
- Electrical circuit boards schematics
- Exploded diagram & Parts List

## Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.



Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.



Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.



May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.



Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.



Indicates that a particular task must be carried out according to a certain standard after disassembly and before re-assembly, otherwise the quality of the components in question may be adversely affected.

# Revision Status

Revision	Issued Date	Description
A	September 20, 2003	First Release
B	December 19, 2003	<p>Chapter 4 Disassembly and Assembly</p> <ul style="list-style-type: none"> <li>Disassembly procedure for Scanner Unit is reviewed.               <ul style="list-style-type: none"> <li><a href="#">4.2.2 Scanner Unit Removal (p.43)</a></li> <li><a href="#">4.4.1 Scanner Housing Removal (p.48)</a></li> <li><a href="#">4.4.2 HP Sensor (p.49)</a></li> <li><a href="#">4.4.3 CIS Unit (p.50)</a></li> <li><a href="#">4.4.4 Drive Unit (p.51)</a></li> </ul> </li> </ul> <p>Chapter 5 Adjustment</p> <ul style="list-style-type: none"> <li>Adjustment program is added and whole description of Chapter 5 is reviewed.</li> </ul> <p>Chapter 6 Maintenance</p> <ul style="list-style-type: none"> <li><a href="#">6.3.2 Scanner Lubrication Point (p.98)</a> added</li> </ul> <p>Chapter 7 Appendix</p> <ul style="list-style-type: none"> <li><a href="#">7.3 Exploded Diagrams (p.113)</a> added</li> <li><a href="#">7.4 ASP List (p.123)</a> added</li> </ul>
C	April 8,2004	Add the description about CX6500 & CX6600

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CHAPTER

1

# PRODUCT DESCRIPTION

## 1.1 Overview

This section explains overall specifications of the CX6300/CX6400/CX6500/CX6600 model of SPC (Scanner/Printer/Copier).

### 1.1.1 Features

CX6300/CX6400/CX6500/CX6600 have the following features.

Printer function

The Printer function produces laser sharp quality and faster output on plain paper. DuraBrite ink creates.

- 1440 (H) x 720 (V) dpi printing (Max resolution)
- Separated ink cartridge for each color
- Printable from PC and memory card
- Built-in auto document feeder holds 150 cut-sheets (90g/m<sup>2</sup>)
- Print head nozzle configuration

Monochrome : 180 nozzles

Color : 59 nozzles x 3 (Cyan, Magenta and Yellow)



**This model has no interchangeability with the CX-5100/5200 that is its previous model with regard to ink cartridge. See “Ink Cartridges” (p.13)**

Scanner function

It allows read data to be transferred to PC or memory card, and has the following features:

- 1200 x 2400 dpi scanning (Optical resolution)
- 16 bit-in, 8 bit-out

Standalone Copier function

By use of the latest 4 color printer engine, high quality copying of photos is offered not just with special-purpose paper but also with regular paper. The printer also has the following characteristics.

**Table1-1.**

Type of Copy	Margin	Feature
Standard Copy	3mm	Usual copy
Borderless Printing	No Margin	Full page copy with no margin
Fit to Page Printing	1.5mm	Copy with top, bottom, right and left margins each being 1.5mm
Double-Sided Printing	–	Prints multiple same documents on one page with each size same as original one(4, 9, 16).
Poster Printing	–	Copies one image in enlargement or division for poster size (only for Letter size).
Pages Per Sheet Printing	–	Reduces 2 pages (4 pages) in size of document and copies them on one page.

Equipped with card reader

CX6300/CX6400/CX6500/CX6600 is equipped with memory card slot on the front.

- Allows digital camera memory data to be printed without PC (order sheet print, print for each sheet, range specification, etc.).
- Allows scan data to be saved in memory card.
- Usable as card reader (when connecting to PC).
- Supports the following various memory cards:
  - CF Card / Microdrive
  - MemoryStick / MagicGate Memory Stick  
Memory Stick Duo\*/ Memory Stick Pro
  - SD Card / miniSD Card\*
  - MultiMediaCard / RS-Multi Memory Card\*
  - SmartMedia / xD-Picture Card

Note “\*”: An adapter is required.



### 1.1.2 Defference bewteen CX6300/CX6400 and CX6500/ CX6600

- COVER, MIDDLE
  - CX6300/CX6400 has a metal support in the back of cover.
  - CX6500/CX6600 dose not have a metal support in the back of cover.
- HOLDER DAMPER
  - CX6300/CX6400 has a dumper for the memory card cover.
  - CX6500/CX6600 dose not have any dumper for the memory card cover.
- BRACKET,DURABRITE
  - CX6300/CX6400 has a bigger DURABRITE logo plate.
  - CX6500/CX6600 has a smoller DURABRITE logo plate than that of CX6300/CX6400. So, we have arranged it sommler DURABRITE plate bracker. We will also adopt it to CX6300/CX6400 by running changeEPSON Stylus CX6300/CX6400/CX6500/CX6600.

## 1.2 Common

This section explains specifications that are common for both the scanner and the printer.

### 1.2.1 Electrical specifications

Table1-2. AC Input

		100V model	120V model	220 - 240V model
Rated voltage (ACV)		100	120	220 - 240
Input voltage (ACV)		90 - 110	108 - 132	198 - 240
Rated current (A)		0.5 A	0.5 A	0.3 A
Rated frequency range (Hz)		50 - 60		
Input frequency range (Hz)		49.5 - 60.5		
Power consumption (W)	Standalone copying*1	Approx. 15 W		Approx. 14 W
	Sleep mode	Approx. 3.5 W		
	Power Off Mode	Approx. 0.3 W		Approx. 0.5 W

Note 1: The product is Energy Star compliant.

2: The electric current to hold the mechanism control motors is reduced when non-operation continues for 5 minutes.

3: The Scanner lamp is turned off when non-operation continues for 15 minutes.

Note \*1: Standalone copying, ISO 10561 Letter Patter, Plain Paper -Text.

### 1.2.2 Interface

Standard	<ul style="list-style-type: none"> <li>Based on Universal Serial Bus Specifications Revision 2.0</li> <li>Universal Serial Bus Device Class Definition for Printing Devices Version 1.1</li> <li>Universal Serial Bus Mass Storage class Bulk-Only Transport Revision 1.0</li> </ul>
Bit rate	480 Mbps (full speed device)
Data encoding	NRZI
Adaptable connector	USB Series B
Recommended cable length	2 meters or less

### 1.2.3 Safety, EMC

- U.S. model:
  - Safety UL 60950  
CSA C22.2 No.60950
  - EMC FCC part 15 Subpart B class B  
CSA C108.8 Class B
- European model:
  - Low Voltage Directive 73/23/EEC EN 60950
  - EMC Directive 89/336/EEC EN 55022 Class B  
EN 55024  
EN 61000-3-2  
EN 61000-3-3
- Australian model:
  - EMC AS/NZS 3548 Class B

### 1.2.4 Environmental condition

Table1-3. Environmental condition

	Operating	Non-operating	During transportation
Temperature*1	10 - 35°C	-20 - 40°C*1	-20 - 60°C*2
Humidity (without condensation)	20 - 80%, RH	20 - 85%, RH	5 - 85%, RH
Resistance to shock	1 G, within 1 ms		2 G, within 2 ms
Resistance to vibration	0.15G	0.50G	

Note \*1: 1 month at 40 °C

\*2: 1 month at 40 °C 120 hours at 60 °C

\*3: With shipment container



### 1.2.5 Reliability

5 years or the following print volume, which is shorter in terms of time

- Total print volume
  - Monochrome : 50,000 pages (A4, Letter)
  - Color : 20,000 pages (A4, Letter)
- Printhead Life : 4000 million dots/nozzle
- Scanhead : MCBF 30,000 cycles

### 1.2.6 Acoustic noise

- Level
  - Approx. TBD dB (Standalone copy)  
(According to ISO7779)
  - Acoustic noise of printer : 42dB

### 1.2.7 Physical specification

- Weight : 9.0 kg
- Dimension : 450 x 429 x 218 mm (W x D x H)

### 1.3 Ink Cartridges

- Type : Dedicated cartridge
- Recommended service period : As shown on individual packaging box.  
Within 6 months of unpacking.
- Storage temperature:
  - During storage : -30 ~ -40°C (within one month for 40°C)
  - During transportation : -30 ~ -60°C (within 120 hours for 60°C,  
within one month for 40°C)
  - When installed to main body : -20 ~ 40°C (within one month for 40°C)
  - Others

Table1-4.

		Model Number		Outside Dimension	Life Span*1
		EAI/EMC	Asia/Latin		
Black Ink Cartridge	L size	T0431	-	22.0 x 71.2 x 66.5 mm	950 Page*2
	S size	T0441	T0461		420 Page*2
Color Ink Cartridge (S size)	Cyan	T0442	-	12.7 x 71.2 x 66.5 mm	450 Page*2
	Magenta	T0443	-		
	Yellow	T0444	-		
Color Ink Cartridge (SS size)	Cyan	T0452	T0472	12.7 x 71.2 x 66.5 mm	280 Page*2
	Magenta	T0453	T0473		
	Yellow	T0454	T0474		

- Note \*1: A4, ISO/IEC 10561 Letter Pattern at 360dpi, 5% duty each color)
- \*2: This is a numeric value obtained when continuous printing\*3 is performed after cartridge replacement. Note that it is increased or decreased depending on cleaning frequency. And, the ink cartridge first installed to this unit uses ink ??so that the unit can allow printing also.
- \*3: Continuous printing: It means that printing continues without interruption owing to power button ON/OFF operation, head cleaning operation, etc.



CHAPTER

2

## OPERATING PRINCIPLES

## 2.1 Overview

This chapter explains the operating principles of the CX6300/CX6400/CX6500/CX6600 mechanisms and electrical circuitry.

The CX6300/CX6400/CX6500/CX6600 is primarily divided into the printer unit and the scanner unit. Mechanisms can also be separated by printer unit and scanner unit. Electrical circuitry is composed of Main Board circuits, PSB/PSE Board circuits, CIS Board circuits and Panel Board circuits.

## 2.2 Printer Unit

### 2.2.1 Printer Unit Mechanism

The printer unit is composed of the Printhead for printing, the Carriage for carrying the printhead, the CR Motor for moving the carriage within the print range, the Cap Unit for preventing drying of the printhead, the PF Motor for feeding paper, the ASF Unit for paper supply using PF motor power, and the Eject Unit for ejecting printed paper.

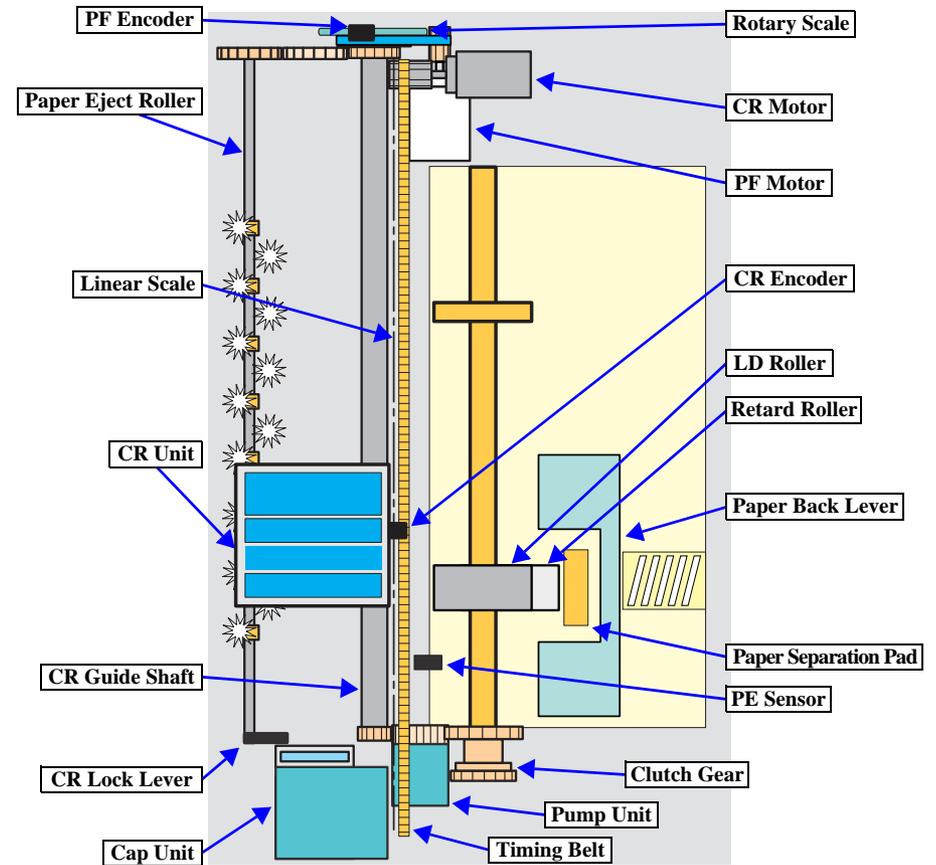
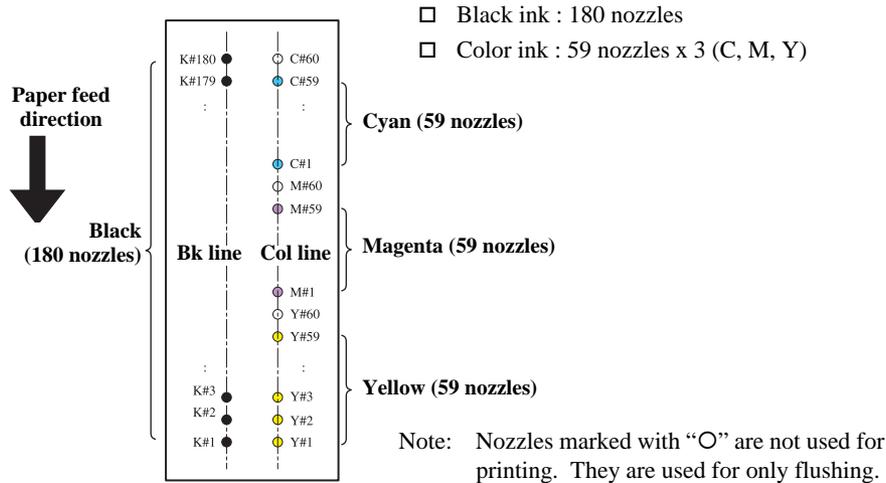


Figure 2-1. Printer Unit Mechanism Overview

### 2.2.1.1 Printerhead Specification



### 2.2.1.2 Carriage Motor Specification

Table 2-1. CR motor Specification

Items	Specifications
Type	DC motor with brushes
Drive voltage	+42V ± 5% (voltage applied to driver)
Coil resistance	28.4 Ω ± 10% (per phase at 25 degree)
Inductance	20.1 mH ± 25% (1KH, 1VmA)
Drive method	PWM, constant-current chopping
Driver IC	A6615

### 2.2.1.3 Paper Feeding Motor Specification

Table 2-2. PF motor Specification

Items	Specifications
Type	DC motor with brushes
Drive voltage	+42V ± 5% (voltage applied to driver)
Coil resistance	22.3Ω ± 10% (per phase at 25 degree)
Inductance	17.3mH ± 25% (1KH, 1VmA)
Drive method	PWM
Driver IC	A6615

### 2.2.1.4 PW Detector Specification

CX6300/CX6400/CX6500/CX6600 has newly employed a PW (Paper Width) sensor that is described in detail below.

#### □ Purpose of Detection

- To prevent printing with no characters on cut sheet, roll paper, board sheet
- To detect the head of board sheet
- To detect the center of CDR

#### □ Detector Specification

Item	Specification
Detecting method	Photoelectric conversion method (reflection type) (SHARP GP2S40K)
Open-collector electric characteristic	Collector withstand-voltage: not more than 30V
	Sinc current : not more than 0.2mA
	Driving voltage1 : 3.3 ± 5%
	Driving voltage2 : 3.3 ± 5%

#### □ Switching Mode

Detected State	Switching Mode	Detector Output
Paper existent	Open	Voltage low
Paper non-existent	Close	Voltage high

Note: Paper head signals shall be converted by means of 8-bit A/D conversion.

#### □ PW Detector Control

There are two controlling methods using PW detector as follows:

- Control of preventing print with no characters  
Before start of print (immediately after paper head feed is complete) or during print, this control detects the existence of paper with PW detector, driving CR and PF motors and prevents print with no characters on paper sent to paper guide, which applies to only right and left edges of paper.



- Control of restriction to run-off  
This control detect paper edges with PW detector at the time of printing with no margin, and restrict the printing run-off quantity. It detects 4 edges when no margins are set for 4 sides of paper. For each mode, run-off area thin-off control is set that further compensates for run-off mask area at the time of printing with no characters.

Controlling of each detection

Table 2-3.

Detection Type	Detection Direction	CR Drive at Time of Detection	PF Drive at Time of Detection	Detection Timing
• Control of preventing print with no characters	CR direction	Interrupt control (PID/load positioning control)	At stop or during drive	• After paper head feed or during print
• Control of restriction to run-off	PF direction	Stop	At time of interrupt control (PID or BS control)	• Acquisition of position with factory command at time of adjustment

(Carriage bottom face)

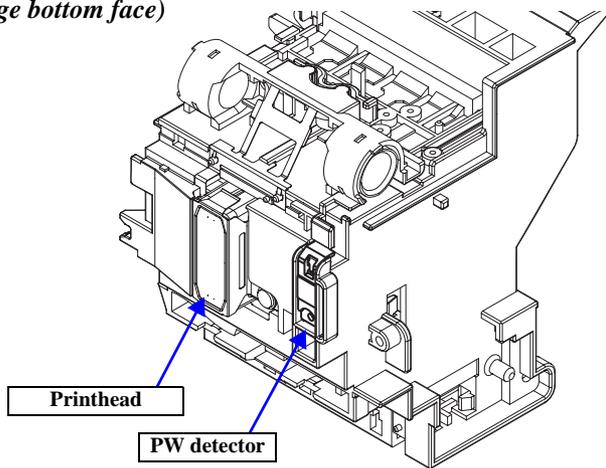


Figure 2-2. PW Detector Installing Position

PW01 .eps

### 2.2.1.5 Paper Loading Mechanism

This section describes the features of the ASF Unit below.

- Uses a Retard Roller. (Laser printers also use this roller.)
- New design of PF/ASF change mechanism. (Operating principle same as previous.)

#### DRIVE PROCESS

1. The motion of the PF Motor is always transmitted to the Combination Gear Ratchet 65.6 but not transmitted to the LD Roller.
2. After receiving the paper feed command, the Carriage Unit contacts the A or B ASF Trigger Lever.
3. At this point, the Change Lever extends in the direction of arrow C, locking the Clutch mechanism.
4. The motion of Combination Gear Ratchet 65.6 is transferred to Clutch Gear 1.
5. LD Roller Gear 2 rotates one time (LD Roller rotates once), and then the LD Roller is stopped by the Clutch Gear again contacting the Change Lever.

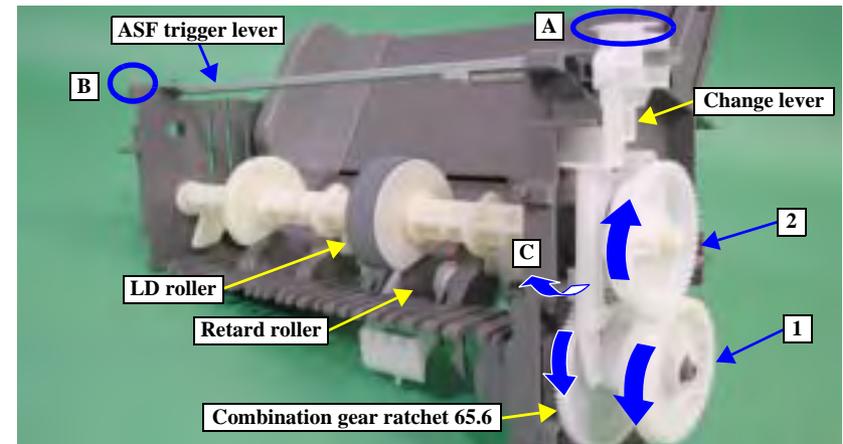


Figure 2-3. Drive Process



### 2.2.1.6 Ink System Mechanism

With this printer, when the PF Motor turns, power is always transmitted to the ink system.

#### PUMP UNIT & WIPER MECHANISM

**Table 2-4. PF motor rotational direction & Ink system mechanism**

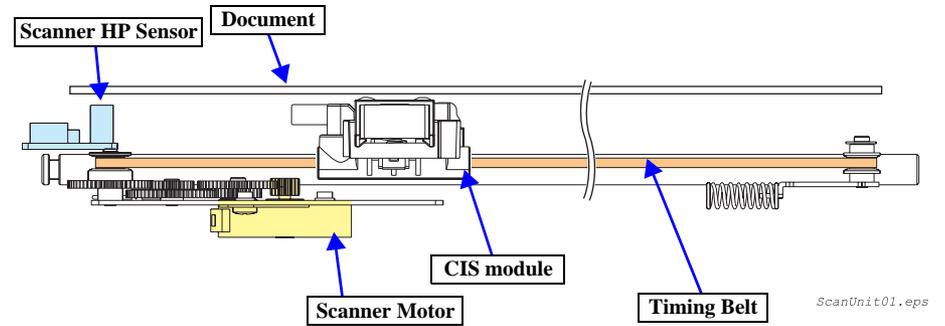
Directions	Functions
Counterclockwise (Counterclockwise)	<ul style="list-style-type: none"> <li>Set wiper.</li> <li>Draw ink.</li> <li>Set CR lock lever.</li> </ul>
Clockwise (Clockwise)	<ul style="list-style-type: none"> <li>Reset wiper.</li> <li>Release pump.</li> <li>Reset CR lock lever.</li> </ul>

### 2.2.2 Scanner Unit Mechanism

The Scanner Unit is composed of the following parts.

**Table 2-5.**

Name	Function
CIS module (Contact Image Sensor)	Converts optical information of (CCD+LED) document into digital information.
HP sensor	Detects home position of CIS Module.
Drive Unit + Timing Belt	Drives CIS Module.



**Figure 2-4. Scanner Unit Mechanism**

#### 2.2.2.1 Scanner Motor Specification

**Table 2-6. Scanner Motor Specification**

Items	Specifications
Type	PM type stepping motor
Drive voltage	+42VDC
Coil resistance	40Ω ±7%
Inductance	TBD mH ± TBD % (TBD KH, TBD VmA)
Drive method	PWM method bipolar type
Driver IC	A6615



### 2.2.3 Electrical Circuitry

The electric circuit of the Stylus CX6300/CX6400/CX6500/CX6600 consists of the following boards.

- C545 Main Board (main circuit board)
- C536 PSB/PSE Board (power supply circuit board)
- CIS Board
- Panel Board

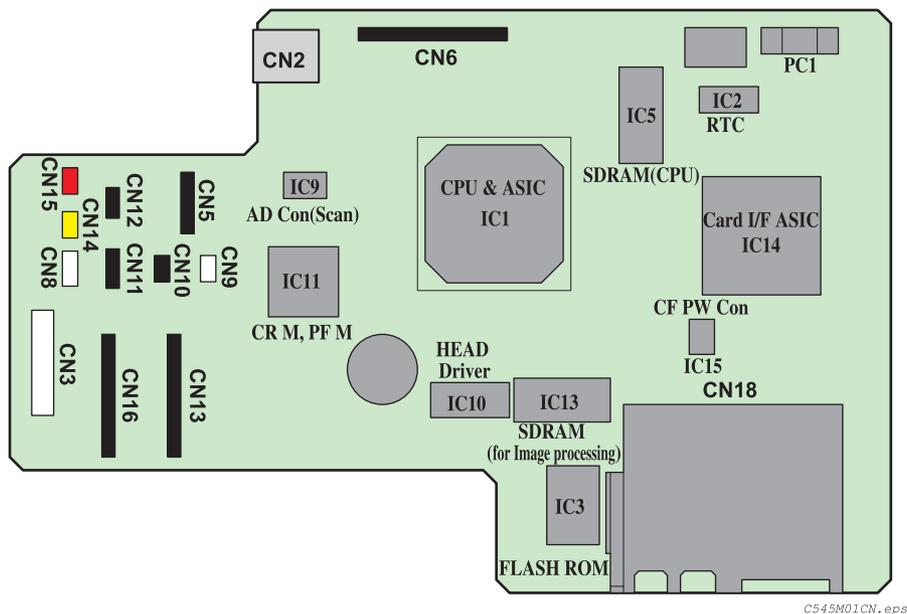


Figure 2-5. C545 Main IC Layout

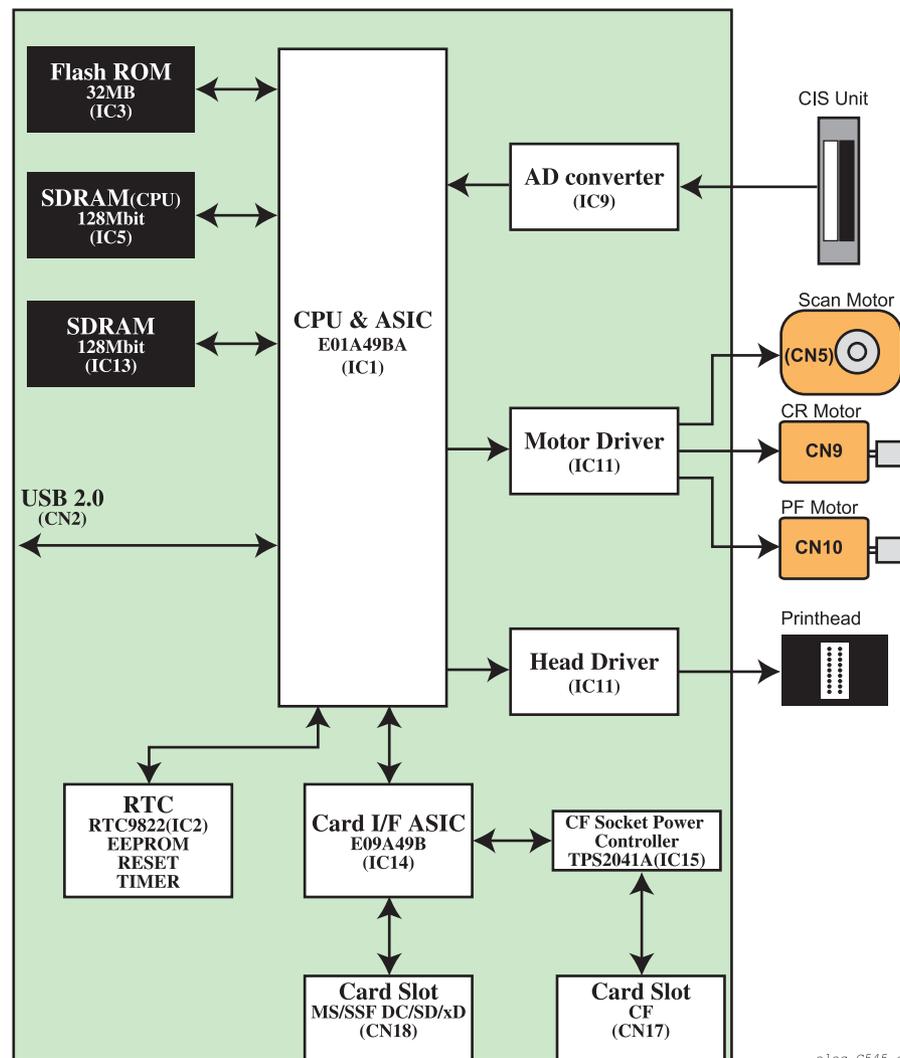


Figure 2-6. Electrical Circuitry Block Diagram



## 2.2.4 C545 Main Board

### 2.2.4.1 Features

- Uses USB multi-end point that allows Hi-Speed SPC to be realized without HUB.
- Equipped with ASIC carrying Printer Control Unit, Scanner Control Unit, PT Control Unit and CPU Super Macro.
- Equipped with the IF ASIC card supporting the following 4 types of cards: PCMCIA(CF)I/F, SSFDC(SmartMedia)I/F, SD I/F and Memory Stick I/F.
- Controls the Printer Unit, Scanner Unit and PT Unit with one CPU (E2 NEC make).
- Packages 128Mbit\*16 for work of CPU and 128Mbit\*16 SDRAM for work of ASIC Image Processing Unit.
- Packages 32Mbit\*16 ROM.
- Uses A6615 in Motor Driver IC that can drive DC x 2 and STEP x 1 with one chip.
- Secures a band width by setting to 96MHz the operating frequency of SDRAM for ASIC image processing.
- Speeds up copy data processing by performing scanning, digitizing, microwave generating and image buffer generating at HW inside ASIC, using copy function
- Restricts consumption of power by executing the following items in transition to low power mode while using low current LED.
  - Decreasing of power voltage
  - Stopping of optical current of optical sensor
  - Sleeping of motor driver
  - Printer-peculiar power saving such as motor no-excitation
  - Scanner-peculiar power saving such as AFS standby mode etc.

Table 2-7.

Major Device	location	Function
ASIC incorporating CPU core (E01A49BA)	IC1	<ul style="list-style-type: none"> <li>• NB85AE2S core incorporated (V850-based CPU core)</li> <li>• Built-in iLB RAM 12Kbyte, built-in dLB RAM 4Kbyte, built-in iCACHE 8Kbyte, built-in dCASHE 8Kbyte</li> <li>• SSCG incorporated                             <ul style="list-style-type: none"> <li>CPU core : 192MHz(SSCG)</li> <li>User Logic (scanner/Printon) : 48MHz(SSCG)</li> <li>User Logic (printer) : 48MHz</li> <li>Local SDRAM : 96MHz(SSCG)</li> <li>External Bus Clock : 64MHz(SSCG)</li> </ul> </li> <li>• EPSON UDL function:                             <ul style="list-style-type: none"> <li>Engine Unit, PT Unit, Scanner Unit Control, Image Processing</li> </ul> </li> <li>• I/F control: USB2.0, USB1.1</li> <li>• ADC IP [AAA8AGPBL] incorporated                             <ul style="list-style-type: none"> <li>10Bit-1MHz A/D Converter 4CH</li> </ul> </li> <li>• Power voltage: Internal - 1.5V, External - 3.3V</li> </ul>
FLASH ROM (MBM29PL32TM/BM)	IC3	<ul style="list-style-type: none"> <li>• Firmware stored</li> <li>• 32MB, 16-bit bus, 48 pins, 3.3V driving</li> </ul>
SDRAM (K4S281632)	IC5	<ul style="list-style-type: none"> <li>• System memory (used for CPU)</li> <li>• 128 Mbit, 16-bit bus, 54 pins, 133MHz(CL=2) or more</li> </ul>
SDRAM (K4S281632)	IC13	<ul style="list-style-type: none"> <li>• Work memory for copy function (used for image processing)</li> <li>• 128 Mbit, 16-bit bus, 54 pins, 133MHz(CL=2) or more</li> </ul>
ASIC for Card I/F (E09A49B)	IC14	<ul style="list-style-type: none"> <li>• Bus clock: 64MHz, Internal Clock: 48MHz</li> <li>• 3.3V single power source</li> </ul>
CF Socket Power Controller (TPS2041A)	IC15	<ul style="list-style-type: none"> <li>• 8-pin PSPO</li> <li>• Power Control 1CH with current limiter</li> </ul>
RTC Circuit (RTC9822)	IC2	Composite IC <ul style="list-style-type: none"> <li>• EEPROM(saving default set values, various parameters)</li> <li>• RESET</li> <li>• TIMER</li> </ul>
Motor Driving Circuit (A6615)	IC11	<ul style="list-style-type: none"> <li>• CR Motor, PF Motor, Scanner Motor Driving Circuit</li> <li>• Driving voltage: 42V ± 5%</li> </ul>
Head Driving Circuit (E09A45LA)	IC10	<ul style="list-style-type: none"> <li>• Head Driving Control</li> </ul>
AD Converter (WM8152)	IC9	<ul style="list-style-type: none"> <li>• Converts scanned data (analog data) into digital data (16 bits (4 bits x 4).</li> </ul>



CHAPTER

3

# TROUBLESHOOTING

## 3.1 Overview

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With this printer, almost all troubles can be coped with by using “EPSON Status Monitor 3” installed on the host personal computer.

Once an error occurs, the “EPSON Status Monitor 3” will appear as a pop-up window on the screen of the host PC. It will show details of how to cope with the trouble. In almost all cases, the user can recover the printer from the error, provided that the user follows the instructions indicated on the pop-up window.

In addition, the User's Manual describes detailed steps to be taken for recovery from typical errors.

### 3.1.1 Specified Tools

This printer does not require any specified tools for troubleshooting.

### 3.1.2 Preliminary Checks

Before starting troubleshooting, be sure to verify that the following conditions are all met:

- The power supply voltage must be within the specification limits. (Measure the voltage at the wall socket.)
- The POWER CORD must be free from damage, short circuit or breakage, or miswiring in the POWER CORD.
- The printer must be grounded properly.
- The printer should not be located in a place where it can be exposed to too high or low temperature, too high or low humidity, or abrupt temperature change.
- The printer should not be located near waterworks, near humidifiers, near heaters or near flames, in a dusty atmosphere or in a place where the printer can be exposed to blast from an air conditioner.
- The printer should not be located in a place where volatile or inflammable gases are produced.
- The printer should not be located in a place where it can be exposed to direct rays of the sun.
- The printer must be located in a well-ventilated place.
- The printer must be placed on a strong and steady level table (without an inclination larger than 5 degrees).
- The paper used must conform to the specification.
- There is no error in handling of the printer.
- Check the inside of the printer, and remove foreign matters, if any, such as paper clips, staples, bits of paper, paper dust or toner.
- Clean the inside of the printer and the rubber rolls.



### 3.2 Trouble shooting by unit level

By obeying this trouble shooting, when some trouble happens, it can be easily understood which unit has defect, according to its phenomenon. The troubles phenomenon are listed up in Table 3-1, Table 3-2. The flow chart by troubles is returned, after trouble is inferred.

Following flow chart describes main process of trouble shooting.

*NOTE: Trouble shooting for motor, sensor are to be referred to page 36.*

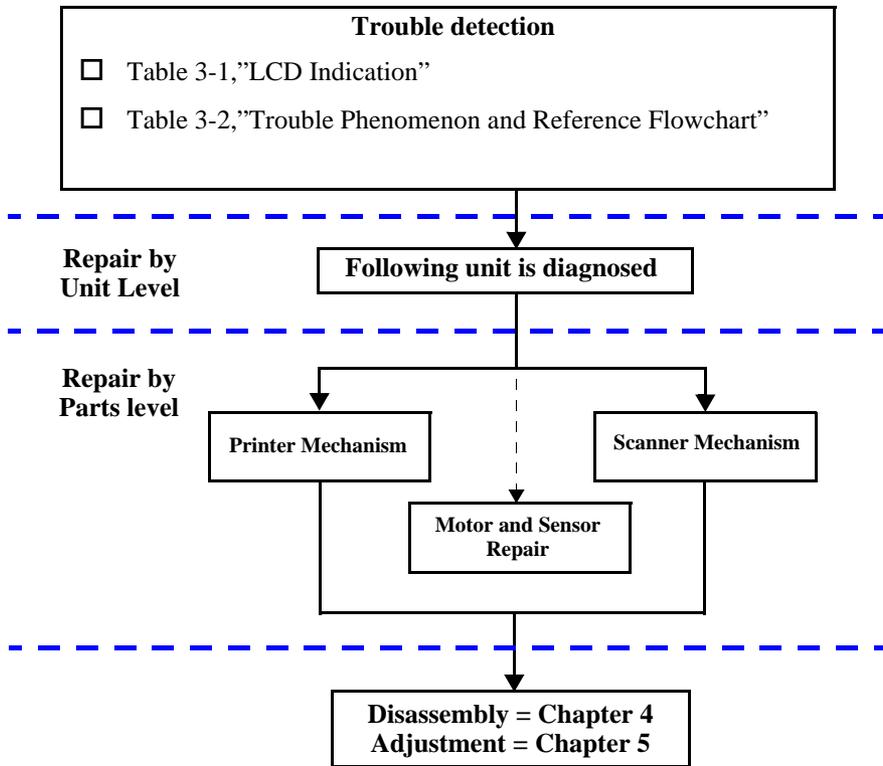


Figure 3-1. Trouble Shooting Flowchart

Table 3-1. LCD indication

Error status	LCD indication (The error title appears in LCD upper portion followed by scrolling error message in lower portion)	LED indication	
		Power	Error LED
Scanner unit open error	Scanner unit open ---> Close the scanner unit.	---	On
Paper out error	Paper out ---> Load paper in Paper tray and press the Color copy button.	---	On
Ink out error	ink out ---> <Ink out colors> Press the Color copy button to begin replacing the ink cartridge. <sup>(*)</sup>	---	On
Ink cartridge error	Ink cartridge error ---> Press the Color copy button to begin replacing the ink cartridge.	---	On
No ink cartridge error	No <No ink cartridge colors> ink cartridge ---> Press the Color copy button to install new ink cartridge.	---	On
Paper jam or miss feed error	Paper jam or miss feed ---> Press the Color copy button and clear the paper jam by hand if necessary.	---	On
Waste ink overflow	Printer error ---> See your documentation and call service if necessary.	---	Blink
Printer error	Printer error ---> See your documentation and call service if necessary.	---	On
Scanner error	Scanner error ---> See your documentation and call service if necessary.	---	On



Table 3-2. Trouble Phenomenon and Reference Flowchart

Phenomenon	Detail	Refer point
Power is on but not operating	<ul style="list-style-type: none"> <li>LED does not turn on at all.</li> <li>Printer mechanism does not operate at all.</li> <li>Scanner mechanism does not operate at all.</li> </ul>	Figure 3-2
Abnormal operation panel	<ul style="list-style-type: none"> <li>Pressing button but no reaction.</li> </ul>	Figure 3-3
Error is detected	<ul style="list-style-type: none"> <li>LCD/LED panel shows error status.</li> </ul>	Figure 3-4
Paper feeding is not normally executed.	<ul style="list-style-type: none"> <li>Paper feeding is not done.</li> <li>Paper jam happens.</li> <li>Paper start up position is not lined up.</li> </ul>	Figure 3-5
Trouble related to print	<ul style="list-style-type: none"> <li>Print is not done.</li> <li>Print is abnormal (Dot is missing etc.).</li> <li>Print quality is bad.</li> </ul>	Figure 3-6
Trouble related to scanner	<ul style="list-style-type: none"> <li>Scanner does not operate normally.</li> </ul>	See "3.4 Trouble Shooting related to Scanner", page 33

### 3.2.1 Power is on but Printer / Scanner does not operate at all.

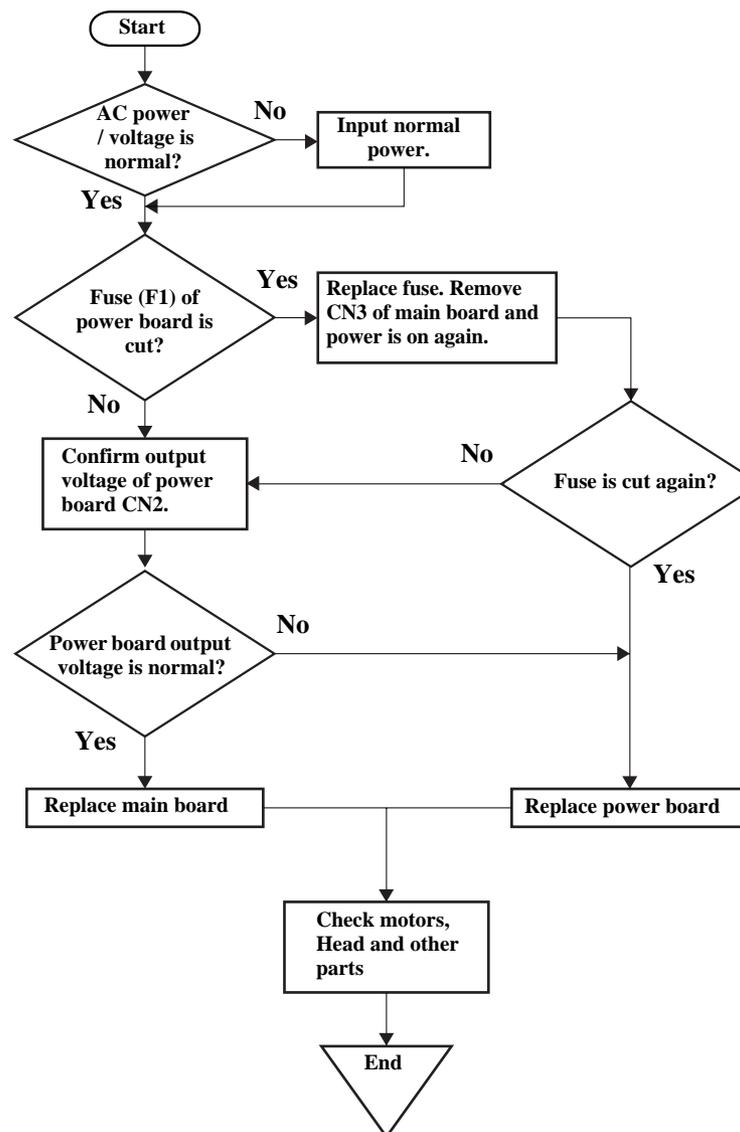


Figure 3-2. Flowchart1



### 3.2.2 Operation Panel abnormality

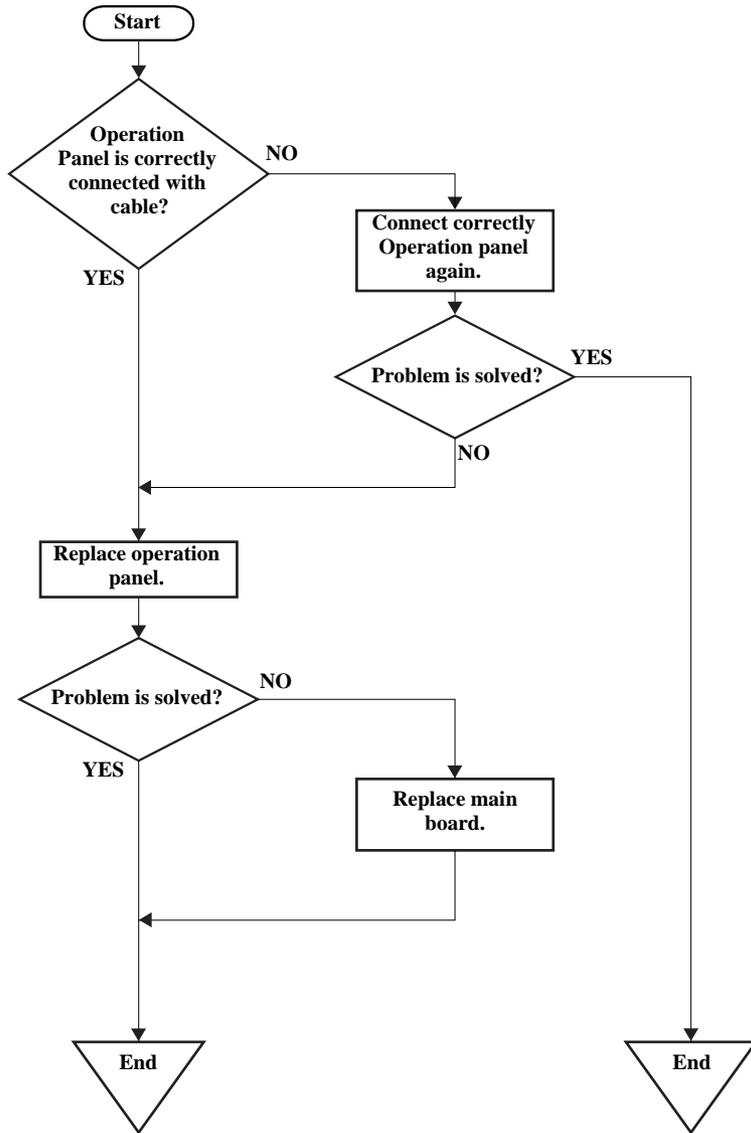


Figure 3-3. Flowchart2

### 3.2.3 Paper feeding is not normally implemented

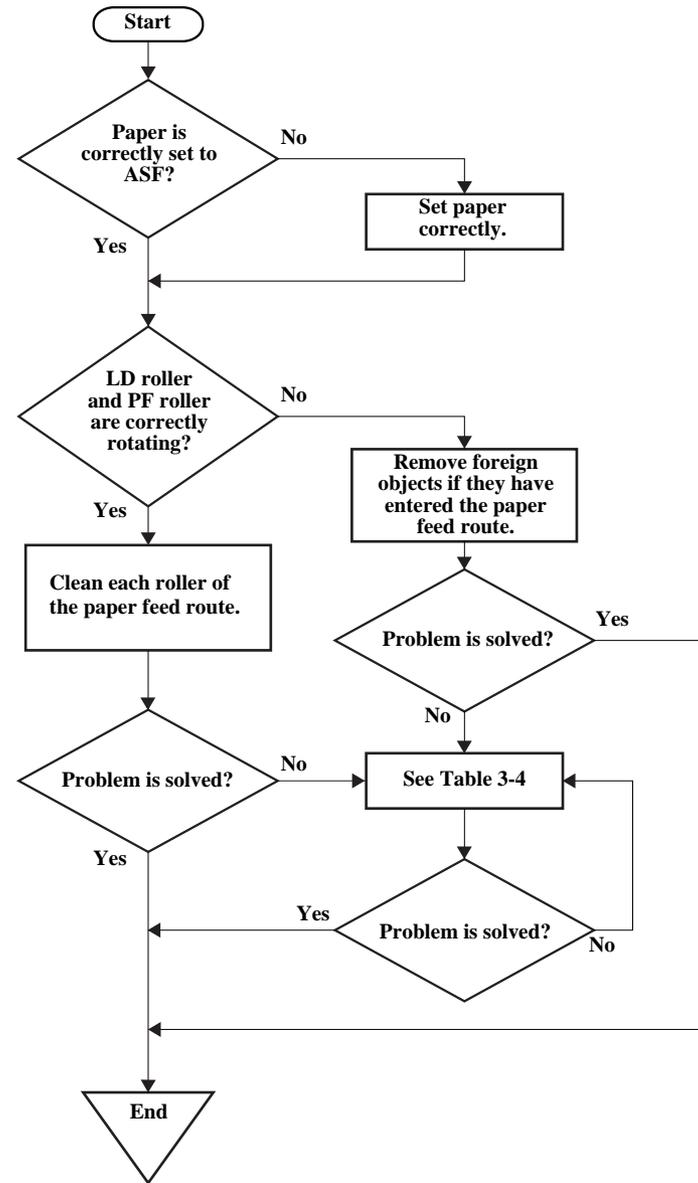


Figure 3-4. Flowchart3



### 3.2.4 Error is detected

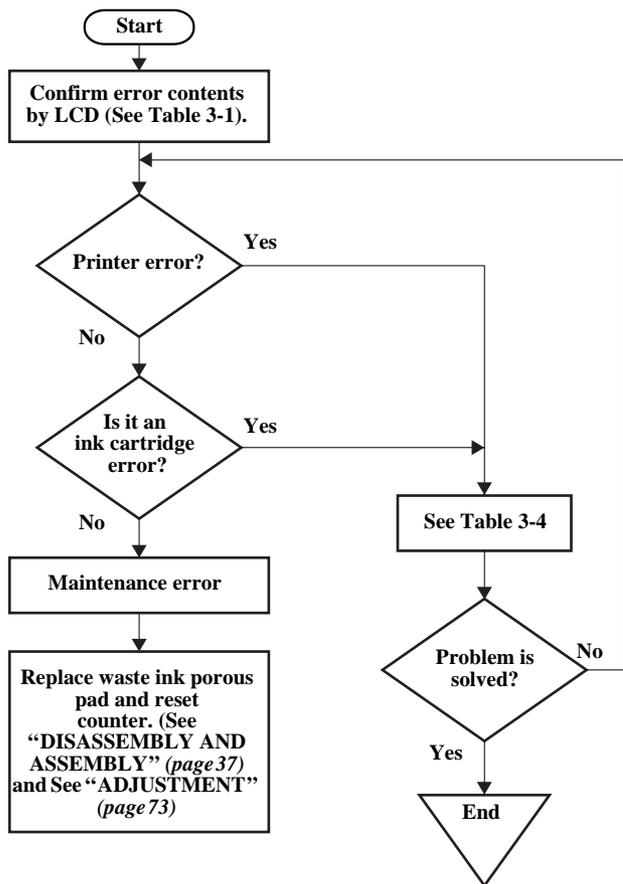


Figure 3-5. Flowchart4

### 3.2.5 Trouble related to Print

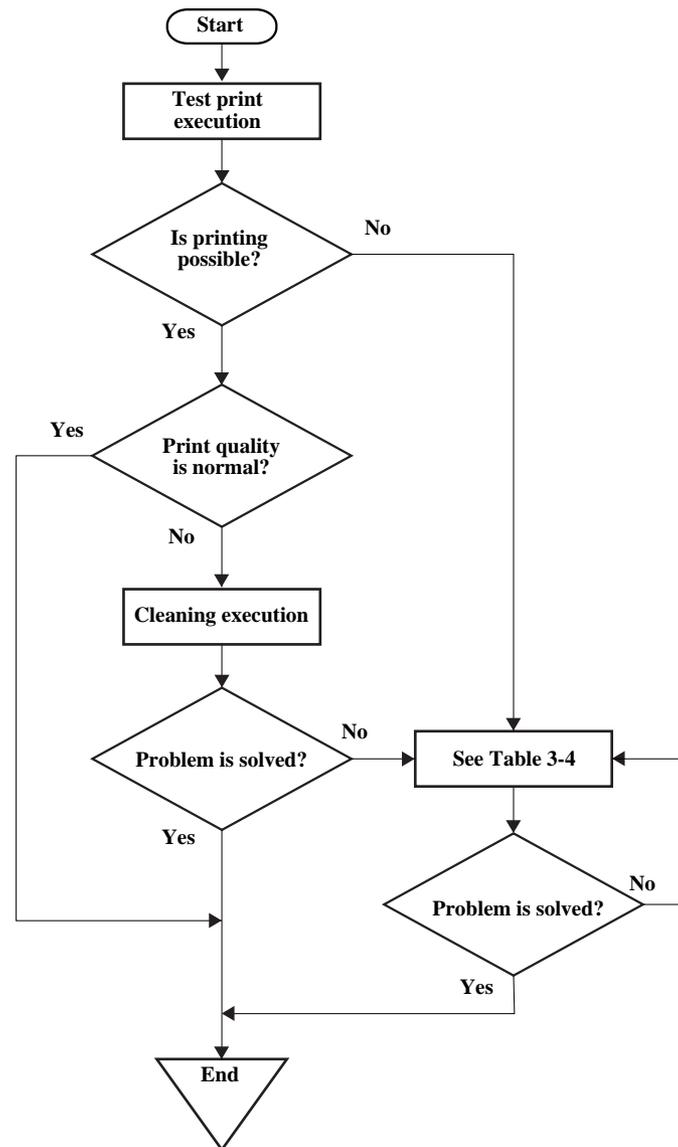


Figure 3-6. Flowchart5



### 3.3 Trouble Shooting related to Printer

This section describes repair /service of Printer Mechanism. This part shows various problems which possibly happen, its phenomenon, check point and resolution method. Select applicable phenomenon from following tables and check parts function shown in Check Point.

**Table 3-3. Printer Unit Errors**

Error	Cause	Corrective Action
Paper out	<ol style="list-style-type: none"> <li>1. No paper in ASF tray.</li> <li>2. Paper was fed into printer while not aligned to right edge guide.</li> <li>3. Paper stops before reaching PE sensor. Or paper is not being fed.</li> <li>4. ASF is not properly assembled.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set paper in tray.</li> <li>2. When paper has stopped midway through route, turning power off and back on will eject the paper. If paper is not ejected, use the panel switch to eject paper.</li> <li>3. Clean LD Roller and Retard Roller.</li> <li>4. Align phase of Clutch Gear, Paper Back Cam and Paper Back Support Lever inside ASF.</li> </ol>
Ink low / Ink out	<ol style="list-style-type: none"> <li>1. Little ink is left in ink cartridge.</li> <li>2. Ink consumption has reached 100%.</li> </ol>	<ol style="list-style-type: none"> <li>1. Prepare a new ink cartridge for installation.</li> <li>2. Replace ink cartridge.</li> </ol>
Ink cartridge error	<ol style="list-style-type: none"> <li>1. Ink cartridge CSIC data cannot be read or written.</li> <li>2. CSIC Board or electrode inside Carriage Unit contacting the CSIC Board has failed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace ink cartridge.</li> <li>2. Replace Carriage Unit.</li> </ol>
No Ink cartridge	<ol style="list-style-type: none"> <li>1. Ink cartridge not yet installed, or out of place.</li> </ol>	<ol style="list-style-type: none"> <li>1. Properly install ink cartridge.</li> </ol>

**Table 3-3. Printer Unit Errors**

Error	Cause	Corrective Action
Paper jam	<ol style="list-style-type: none"> <li>1. During paper feed, paper remaining near PE Sensor cannot be ejected.</li> <li>2. Platen gap is not properly adjusted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Press the B/W or color copy button and remove the paper. Or open the printer cover and remove the paper by hand.</li> <li>2. Adjust platen gap properly. (See "Chapter 5 ADJUSTMENT", page 73)</li> </ol>
Maintenance error	<ol style="list-style-type: none"> <li>1. Total ink discharge quantity has exceeded set value due to cleaning or flushing.</li> </ol>	<ol style="list-style-type: none"> <li>1. After replacing Waste Ink Pad, reset the protection counter. (See "Disassembly/Assembly", page 72 and See "Chapter 5 ADJUSTMENT", page 73)</li> </ol>
Fatal error	<ol style="list-style-type: none"> <li>1. Carriage will not operate properly by external force.</li> <li>2. PF Motor does not move by prescribed amount during PF Motor operation.</li> <li>3. Head Hot Error has been generated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the following parts and replace if failed: <ul style="list-style-type: none"> <li>• CR Motor</li> <li>• Linear Scale</li> <li>• CR Encoder</li> </ul> </li> <li>2. Check the following parts and replace if failed: <ul style="list-style-type: none"> <li>• PF Motor</li> <li>• Rotary Scale</li> <li>• PF Encoder</li> </ul> </li> <li>3. Replace Printhead.</li> </ol>



- When paper has become jammed, pull it out from the Stacker side. At that time, if the paper will not come out easily, do not pull on it with strong force. Doing so can dislodge the upper guide.
- When a paper jam has occurred at ASF, remove the paper a little at a time rather than by a single motion. Strong force can damage the mechanism.



Table 3-4. Printer Mechanism Repair

Problem	Condition	Cause	Check Point	Corrective Action
Paper feed abnormal	Paper does not feed	LD Roller and Retard Roller are worn	1. Check for adherence of micropearl or oils on surfaces of LD Roller and Retard Roller.	1. Use a cleaning sheet to clean LD Roller and Retard Roller. (1) Set cleaning sheet inverted inside the ASF Unit. (2) Start paper feed with panel button. (3) Repeat steps above several times. * To remove oils from rollers, staple a cloth dampened with alcohol to a postcard and follow the steps below. (1) Set the surface of the alcohol dampened cloth in the tray facing the LD Roller (or Retard Roller). (2) Start paper feed while firmly holding upper edge of card stock. (3) Repeat the paper feed operation several times to clean the surface of the LD Roller (or Retard Roller). If these steps do not correct the problem, replace both the LD Roller and Retard Roller.
		ASF Unit operation is abnormal	1. Check that the Paper Back Cam, Clutch Gear and Paper Back Support Lever at the right side of the ASF Unit are not out of phase. 2. Check that Compression Spring 2.9 has not disconnected from the Hopper.	1. Align phase of Paper Back Cam, Clutch Gear and Paper Back support Lever. 2. Install Compression Spring 2.9 properly.
		PE Sensor/PE Lever not operating properly	1. Check that the PE Sensor connector has not disconnected from sensor or Main Board. 2. Check that Torsion Spring 0.28 is properly connected to PE Lever. 3. Check for damaged PE Sensor.	1. Connect the PE Sensor connector to sensor and Main Board CN8. 2. Connect Torsion Spring 0.28 and PE Lever properly. 3. Replace PE Sensor.
	Several sheets of paper are fed at the same time	Retard Roller operation is abnormal	1. Check that Extension Spring 2.25 pulling on the Retard Roller has not become disconnected. 2. Check for disconnected Retard Roller.	1. Connect Extension Spring 2.25 properly. 2. Install Retard Roller properly.
Paper eject abnormal	Paper jams during eject	Change Lever not operating properly	1. Check that Extension Spring 1.47 pulling on the Change Lever has not become disconnected.	1. Connect Extension Spring 1.47 properly.
		Paper Eject Roller not operating properly	1. Check that Paper Eject Roller is rotating properly.	1. Properly align teeth of gears driving the Paper Eject Roller.

Table 3-4. Printer Mechanism Repair

Problem	Condition	Cause	Check Point	Corrective Action
Printer stops during initialization or during printing	Ink Out Error is displayed	Ink has been cut off	1. Check for ink remaining in the ink cartridge.	1. Replace ink cartridge.
	No Ink Cartridge Error is displayed	Ink cartridge is not installed	1. Check that the ink cartridge is completely installed in the Carriage Unit. 2. Check that the ink cartridge is not floating up out of place. 3. Check for broken hooks at front/back of ink cartridge.	1. Install the ink cartridge completely. 2. Install the ink cartridge properly. 3. Replace ink cartridge.
	Ink Cartridge Error is displayed	The ink cartridge is damaged	1. Check for disconnected CSIC Board. 2. Check for missing tip of CSIC Board.	1. Replace ink cartridge. 2. Replace ink cartridge.
Carriage operation abnormal	Carriage operation is abnormal during printing	Carriage movement is not smooth	1. Check for an obstacle in the Carriage route. 2. Check for smooth Carriage movement when moved by hand. 3. Check Timing Belt tension.	1. Remove the obstacle. 2. Clean CR Guide Shaft. Lubricate parts. 3. Replace Compression Spring 26.46 of Driven Pulley Holder.
Printer stops during initialization	Printer Error is displayed	Paper Eject Frame not installed properly	1. Check that the hook securing the Paper Eject Frame has not become disconnected.	1. Install Paper Eject Frame properly.
		CR Motor not operating properly	1. Check for disconnected CR Motor connector. 2. Check that CR Motor coil resistance is as specified.	1. Connect CR Motor connector to Main Board CN9. 2. Replace CR Motor.
		PF Motor not operating properly	1. Check for disconnected PF Motor connector. 2. Check that PF Motor coil resistance is as specified.	1. Connect PF Motor connector to Main Board CN10. 2. Replace PF Motor.
		Linear Scale not operating properly	1. Check that the Linear Scale is traveling between the CR Encoder. 2. Check for dirt on Linear Scale. 3. Check for damaged Linear Scale.	1. Enable Linear Scale to pass between CR Encoder. 2. Completely clean dirt from Linear Scale. 3. Replace Linear Scale.
		CR Encoder not operating properly	1. Check that Encoder FFC is connected to CR Encoder Board. 2. Check for paper bits and dust attached to CR Encoder. 3. Check for damaged Encoder FFC. 4. Check for damaged CR Encoder.	1. Connect Encoder FFC to CR Encoder Board. 2. Remove paper bits and dust attached to CR Encoder. 3. Replace Encoder FFC. 4. Replace Carriage Unit.



Table 3-4. Printer Mechanism Repair

Problem	Condition	Cause	Check Point	Corrective Action
Printer stops during initialization	Printer Error is displayed	Rotary Scale not operating properly	<ol style="list-style-type: none"> <li>1. Check that the Rotary Scale is traveling between the PF Encoder.</li> <li>2. Check for dirt on Rotary Scale.</li> <li>3. Check for damaged Rotary Scale.</li> </ol>	<ol style="list-style-type: none"> <li>1. Enable Rotary Scale to pass between PF Encoder.</li> <li>2. Completely clean dirt from Rotary Scale.</li> <li>3. Replace Rotary Scale.</li> </ol>
		PF Encoder not operating properly	<ol style="list-style-type: none"> <li>1. Check that Encoder FFC is connected to PF Encoder Board.</li> <li>2. Check for paper bits and dust attached to PF Encoder.</li> <li>3. Check for damaged Encoder FFC.</li> <li>4. Check for damaged PF Encoder.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect Encoder FFC to PF Encoder Board.</li> <li>2. Remove paper bits and dust attached to PF Encoder.</li> <li>3. Replace Encoder FFC.</li> <li>4. Replace PF Encoder.</li> </ol>
		Head FFC not operating properly	<ol style="list-style-type: none"> <li>1. Check for disconnected Head FFC.</li> <li>2. Check for damaged Head FFC.</li> </ol>	<ol style="list-style-type: none"> <li>1. Firmly connect Head FFC to Main Board CN13 and CN16 and to Printhead.</li> <li>2. Replace Head FFC.</li> </ol>
		Head Hot Error generated	<ol style="list-style-type: none"> <li>1. Check that ink is emitted from all nozzles.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace Printhead.</li> </ol>
Cannot print normally	Carriage moves properly but printing is not normal	Ink Cartridge not operating properly	<ol style="list-style-type: none"> <li>1. Install a new ink cartridge and test printing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace ink cartridge.</li> </ol>
		Head FFC not connected properly	<ol style="list-style-type: none"> <li>1. Check that Head FFC is firmly connected to Main Board CN13 and CN16.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect Head FFC firmly.</li> </ol>
		Cleaner Blade not operating properly	<ol style="list-style-type: none"> <li>1. Check for debris attached to Cleaner Blade.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean or replace the Cleaner Blade.</li> </ol>
		FFC internal component connections have deteriorated	<ol style="list-style-type: none"> <li>1. Use a tester to check the Head FFC.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace Head FFC.</li> </ol>
		Printhead not operating properly	<ol style="list-style-type: none"> <li>1. Alternate cleaning and test printing several times.</li> </ol>	<ol style="list-style-type: none"> <li>1. If condition does not improve after cleaning, replace Printhead.</li> </ol>

Table 3-4. Printer Mechanism Repair

Problem	Condition	Cause	Check Point	Corrective Action
Printing is abnormal	Improper printing occurs only with a specific dot	Printhead surface is dirty (dot is missing)	1. Alternate cleaning and test printing several times.	1. Clean Printhead surface with a cotton swab.
		Capping absorbent material is touching Printhead surface	1. Check for deformed or damaged capping absorbent material.	1. Replace Ink System Unit.
		Head FFC not operating properly	1. Check for damaged Head FFC.	1. Replace Head FFC.
		Printhead not operating properly	1. Alternate cleaning and nozzle check several times.	1. If condition does not improve after cleaning, replace Printhead.
	Dot is sometimes missing	Printhead surface is dirty (dot is missing)	1. Alternate cleaning and nozzle check several times.	1. Clean Printhead surface with a cotton swab.
		Ink Cartridge not operating properly	1. Install a new ink cartridge and perform nozzle check.	1. Replace ink cartridge.
		Head FFC internal component connections have deteriorated	1. Use a tester to check the FFC.	1. Replace Head FFC.
		Printhead not operating properly	1. Repeat cleaning several times, then perform nozzle check.	1. If condition does not improve after cleaning, replace Printhead.
	A black spot or dot is printed	Head FFC is not connected	1. Check that FFC is firmly connected to each board and Carriage Unit.	1. Connect FFC firmly.
		Printhead not operating properly	1. Check connection of Head FFC to Printhead.	1. If there is no problem with Head FFC to Printhead connection, replace Printhead.
	Vertical lines do not stand up straight	Bi-D is not adjusted	1. Check that Bi-D adjustment has been done properly.	1. Perform Bi-D adjustment. (See "Chapter 5 ADJUSTMENT", page 73)



Table 3-4. Printer Mechanism Repair

Problem	Condition	Cause	Check Point	Corrective Action
Printing is abnormal	White line appears in output data	Dirt has become attached to CR Guide Shaft	1. Check for dirt attached to surface of CR Guide Shaft.	1. Clean surface of CR Guide Shaft with soft dry cloth.
		PF Roller not operating properly	1. Check for dirt on PF Roller. 2. Check for damaged PF Roller.	1. Carefully clean surface of PF Roller with soft brush. 2. Replace PF Roller.
		Ink Cartridge not operating properly	1. Install a new ink cartridge and test printing.	1. Replace ink cartridge.
		Carriage Slide not moving properly	1. Check that sufficient grease remains on carriage slide parts at back of main frame.	1. Clean main frame carriage slide parts then lubricate with specified quantify of G-26. (See "MAINTENANCE", page 99)
		Platen Gap not set properly	1. Check that platen gap adjustment has been done properly.	1. Adjust platen gap. (See "Chapter 5 ADJUSTMENT", page 73)
		Gear is damaged	1. Check for abnormality in gears between pump mechanism and ASF mechanism.	1. Replace damaged parts.
		Dot jet direction is angled due to dirt on Printhead surface	1. Alternate cleaning and test printing several times. 2. Check for debris on Cleaner Blade.	1. Clean with cotton swab. 2. Clean or replace Cleaner Blade.
		Printhead not operating properly	1. Repeat cleaning several times, then perform test print.	1. Replace Printhead.
		CR Guide Shaft not operating properly	1. Check that CR Guide Shaft is firmly installed in specified position. 2. Check for damage on surface of CR Guide Shaft.	1. Reassemble CR Guide Shaft. 2. Replace CR Guide Shaft.
Ink not absorbed or waste ink abnormal	Ink is not flowing from Printhead to Cap or from Cap to Ink Tube	Pump tube is closed	1. Visually check tube.	1. Replace Ink System Unit
		Cap is dirty or damaged.	1. Check for foreign object attached to Cap or damaged Cap.	1. Remove foreign object in Cap with cotton swab. If Cap is damaged, replace Ink System Unit.
		Tube is disconnected from Cap lower section	1. Visually check for disconnection of tube from Cap lower section.	1. Connect tube properly.
		Tube slide up not functioning properly	1. Check for installation of 2 compression springs on tube assembly.	1. Replace Ink System Unit



### 3.4 Trouble Shooting related to Scanner

This section describes repair / service for Scanner mechanism. Trouble Shooting is divided by unit level based on superficial phenomenon when trouble happens. Referring to Table 3-6, find out each phenomenon and check according to referring list.

**Table 3-5. Scanner part error for user level**

Error	Cause	Corrective Action
Scanner unit open	1. Scanner cover is open.	1. Close scanner unit.
Command error	1. Undefined command detected.	1. Receive a defined command or turn on power again.
Scanner fatal error	1. Power was turned on with Scanner Lock not cancelled. 2. Lamp has gone out.	1. Cancel Carriage Lock and turn on power again. 2. Replace Scanner Carriage Unit.

**Table 3-6. Trouble phenomenon and reference table**

Phenomenon	Trouble contents	Reference table
Machine does not operate even though power is on.	Machine does not initialize.	Table 3-7
"Fatal Error" is generated. Because the declared error was generated, recovery cannot occur by turning on power again.	LED does not light.	Table 3-8
	Carriage Unit operates but error is displayed.	Table 3-9
	Carriage Unit does not operate.	Table 3-10
Image is not scanned in cleanly.	Image does not scan cleanly.	Table 3-11
"Communications Error" is generated. The declared error is generated and "Communications Error" is generated when communication with the host is attempted again.	USB interface error.	Table 3-12

**Table 3-7. Scanner part does not operate initialization.**

Cause	Check Point	Resolution method
Connector is removed.	1. Check all connectors for disconnection. 2. Check Main Board for damage.	1. Connect any disconnected connectors. 2. Replace Main Board.



**Table 3-8. LED Does Not Light**

Cause	Check Point	Resolution method
Scanner FFC is disconnected.	1. Check for disconnection of FFC from Scanner Carriage or Main Board CN5/11.	1. Connect FFC to Scanner Carriage and Main Board CN5/11.
CCD Module connector is disconnected.	---	1. Replace Scanner Carriage.
LED is not firmly connected to connector on Inverter Board.	---	1. Replace Scanner Carriage.
Lamp has failed.	1. Check whether lamp will light.	1. Replace Scanner Carriage.
Inverter Board has failed.	---	1. Replace Scanner Carriage.
Main Board has failed.	1. Check Main Board for damage.	1. Replace Main Board.

**Table 3-9. Carriage Unit Operates But Error Is Displayed**

Cause	Check Point	Resolution method
Scanner HP Sensor has failed.	1. Check for failure of Scanner HP Sensor.	1. Replace Scanner HP Sensor.
Main Board has failed.	1. Check Main Board for damage.	1. Replace Main Board.

**Table 3-10. Carriage Unit Does Not Operate**

Cause	Check Point	Resolution method
Scanner Motor connector is disconnected.	1. Check for disconnection of Scanner Motor connector from Main Board CN11.	1. Connect Scanner Motor connector to Main Board CN11.
Carriage transfer mechanism not operating properly.	1. Check that grease is properly applied.	1. Apply grease to specified areas. (See "MAINTENANCE", page 98)
	1. Check that Carriage Unit moves smoothly with Scanner Motor disconnected.	1. Check Carriage transfer mechanism. Replace appropriate parts or disassemble and reassemble.
Scanner Motor not operating properly.	1. Disconnect Scanner Motor connector CN11 and use a tester to check coil resistance between motor Pins 1-2 or between Pins 3-4. (See Table 3-14, page 36)	1. Replace Scanner Motor.
Main Board has failed.	1. Check Main Board for damage.	1. Replace Main Board.

**Table 3-11. Image Does Not Scan Cleanly**

Cause	Check Point	Resolution method
Originals glass is dirty.	1. Check for dirt or smudges on originals glass.	1. Clean originals glass. (See "MAINTENANCE", page 97)
Mirror in Carriage Unit is dirty.	---	1. Replace Scanner Carriage Unit.
CCD Module has failed.	---	1. Replace Scanner Carriage Unit.
Main Board has failed.	1. Check Main Board for damage.	1. Replace Main Board.



### 3.5 I/F Concerned Troubleshooting

This section describes the failure diagnosis on USB Interface, Memory Card Slot.

USB Interface Error

**Table 3-12. USB Interface Error**

Cause	Check Point	Resolution method
Host PC does not officially support Windows 98.	1. Is "Universal Serial Bus Controller" activated in Windows "My Computer" →"Properties" →"Device Manager"?	1. Replace host.
Printer driver is not installed properly.	1. Is driver mistakenly installed in "Other Devices" in Windows "My Computer" →"Properties" →"Device Manager"?	1. Delete the driver and reinstall according to operation manual instructions.
USB Cable has failed.	1. Does USB cable operate properly after being replaced?	1. Replace USB cable.
Main Board has failed.	1. Check for damaged Main Board.	1. Replace Main Board.

Failure diagnosis concerned with Memory Card Slot

**Table 3-13. Failure diagnosis concerned with Memory Card**

Cause	Check Point	Resolution method
Driver has not been installed correctly.	1. Confirm that Memory Card can be recognized by single PX-A650.	1. Temporarily remove the driver, then install it again.
Data has been destroyed.	1. Data on card may be destroyed owing to static electricity.	1. Confirm that card data is read with PC etc. If it is not read, format the card.
Memory Card is faulty.	1. Confirm that another Memory Card can be recognized.	1. Use a new Memory Card.
Contact is poor.	1. Confirm that foreign matters etc. are not attached on Memory Card or in slot.	1. Remove the foreign matters, and clean the contact.
Firmware has abnormality.	-	1. Upload firmware.
Electric noise etc. has been generated.	1. Confirm that FFC is connected correctly, Ferrite Core is positioned in place, etc. inside printer.	1. After the confirmation, if they have no abnormality, replace the Main Board.
Main Board is faulty.	1. Confirm that Main Board is not damaged.	1. Replace the Main Board.



## 3.6 Motor and Sensor trouble Shooting

Table 3-14. Motor resistance and check point

Type	Motor name	Location	Check Point	Resistance
Printer	CR motor	CN9 (Main board)	Pins 1 & 2	28.4 $\Omega$ $\pm$ 10%
	PF motor	CN10 (Main board)	Pins 1 & 2	22.3 $\Omega$ $\pm$ 25%
	Fan motor	CN15 (Main board)	Pins 1 & 2	14.3 $\Omega$ $\pm$ 7%
Scanner	Scanner motor	CN2 (HP Board)	Pins 1 & 2	40 $\Omega$ $\pm$ 7%

Table 3-15. Sensor Check

Type	Sensor name	Location	Signal level	Sensor status
Printer	PE sensor	CN8 Pins 1 & 2 Pins 1 & 3	Close : 2.4V and over	Paper out
			Open : 0.4V or less	Paper in
	PG sensor	CN14 Pins 1 & 2	Close :	
			Open :	
	PW sensor	CN8 Pins 1 & 2 Pins 1 & 3 (CR Board)	Open :	Paper in
			Close :	Paper out
Scanner	Scanner carriage HP sensor	CN1 Pins 1 & 3 Pins 2 & 3	Off :	Outside HP range
			On :	Within HP range

CHAPTER

4

# DISASSEMBLY AND ASSEMBLY

## 4.1 Overview

This chapter explains steps used for disassembly/assembly of the printer. For steps that are not described here, it is possible to assemble the disassembled unit and components by reversing the disassembly steps.

- **Warning**  
Explanations of conditions that could result in injury or death if caution is neglected are presented after the “**WARNING**” symbol.
- **Caution**  
Explanations of cautionary items that need attention prior to a disassembly/assembly step are presented after the “**CAUTION**” symbol.
- **Check point**  
Hints related to disassembly steps are presented after the “**CHECK POINT**” symbol.
- **Reassembly**  
When reassembly steps differ from simply reversing disassembly steps, those steps are presented after the “**REASSEMBLY**” symbol.
- **Adjustment**  
When an adjustment is required following disassembly/assembly, that information is presented after the “**ADJUSTMENT**” symbol.

See the Disassembly/Assembly Chart in the Appendix when it is necessary to disassemble units and components not covered in this chapter.

Be sure to read the following cautions before starting.

### 4.1.1 Precautions

Before engaging in disassembly/assembly of the printer, be sure to read the following “Warnings” and “Cautions.”



- **Before engaging in disassembly/assembly of the printer, be sure to unplug the power cable. However, if application of power cannot be avoided because operations such as voltage measurements are needed, follow the steps described in this manual while exercising caution to avoid electric shock.**
- **Wear protective goggles to guard eyes from ink. If ink does get into the eyes, wash eyes with clean water and get a medical examination.**
- **To prevent injury accidents, wear gloves while performing disassembly/assembly.**
- **If ink gets onto the skin, wash with soap and water. If the skin becomes inflamed, get a medical examination.**
- **To protect the microprocessor and circuits, use a static electricity discharge device such as a wrist strap when touching internal components, and perform operations carefully.**
- **To prevent powder combustion explosion and fire of consumable material components, absolutely do not bring them near flames or throw them into a fire.**
- **If developing fluid or oil adheres to skin or clothing, after removing as much substance as possible with a dry cloth, wash with water.**
- **When assembling, be sure to confirm that the ink tube is properly set in position. If it is not properly set, it could result in an ink leak.**



- **Avant de commencer, assurez vous que l'imprimante soit éteinte et que le cordon d'alimentation soit débranché.**
- **Veillez à jeter les piles usagées selon le règlement local.**





- Only use recommended tools for disassembly, assembly and adjustment.
- Maintain specified torque when tightening screws.
- Use specified lubricating oil and adhesives.
- When disassembling the printer, perform specified adjustments.

### 4.1.2 Specified Tools

To avoid damaging the printer, use only specified tools.

**Table 4-1. Specified Tools**

Name	Supplier	Parts No.
Phillips Screw Driver (No.1)	EPSON	1080530
Phillips Screw Driver (No.2)	EPSON	1080532
Tweezers	EPSON	1080561
Acetate Tape	EPSON	1003963
Box Driver (5.5mm diagonal)	EPSON	1080584
M3 Wrench (5.5mm)	EPSON	-
Round-nosed pliers	EPSON	-
Tension gauge (2000cN)	EPSON	1213123
Sonic Tension Meter	EPSON	1231678

### 4.1.3 Service Dispatch Standard

If the printer is to be returned to the user when printer repairs are complete, perform a final check by following the checklist in Table 4-2.

**Table 4-2. Check List**

Classification	Part	Check item	Check column
Printer unit	Self test	Operation is normal?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	On line test	Print is normally done?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	Printhead (nozzle check pattern print)	Ink gets out normally from all the nozzles?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	CR mechanism	CR smoothly operates?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		CR makes abnormal sound during its operation?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	Paper loading mechanism	Paper is smoothly loaded?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Paper jam does not happen?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Paper does not warp during paper loading?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Multiple papers are not fed?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Abnormal sound is not heard during paper loading?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
There is no alien substance at paper route?		<input type="checkbox"/> OK / <input type="checkbox"/> NG	
Scanner unit	Mechanism	Glass surface is not dirty?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Alien substance is not mixed in the CR movement area?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	CR mechanism	CR smoothly operates?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		CR operates together with scanner unit?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		CR makes abnormal sound during its operation?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	Lamp	Lamp normally turns on and white reflection test is done near home position?	<input type="checkbox"/> OK / <input type="checkbox"/> NG

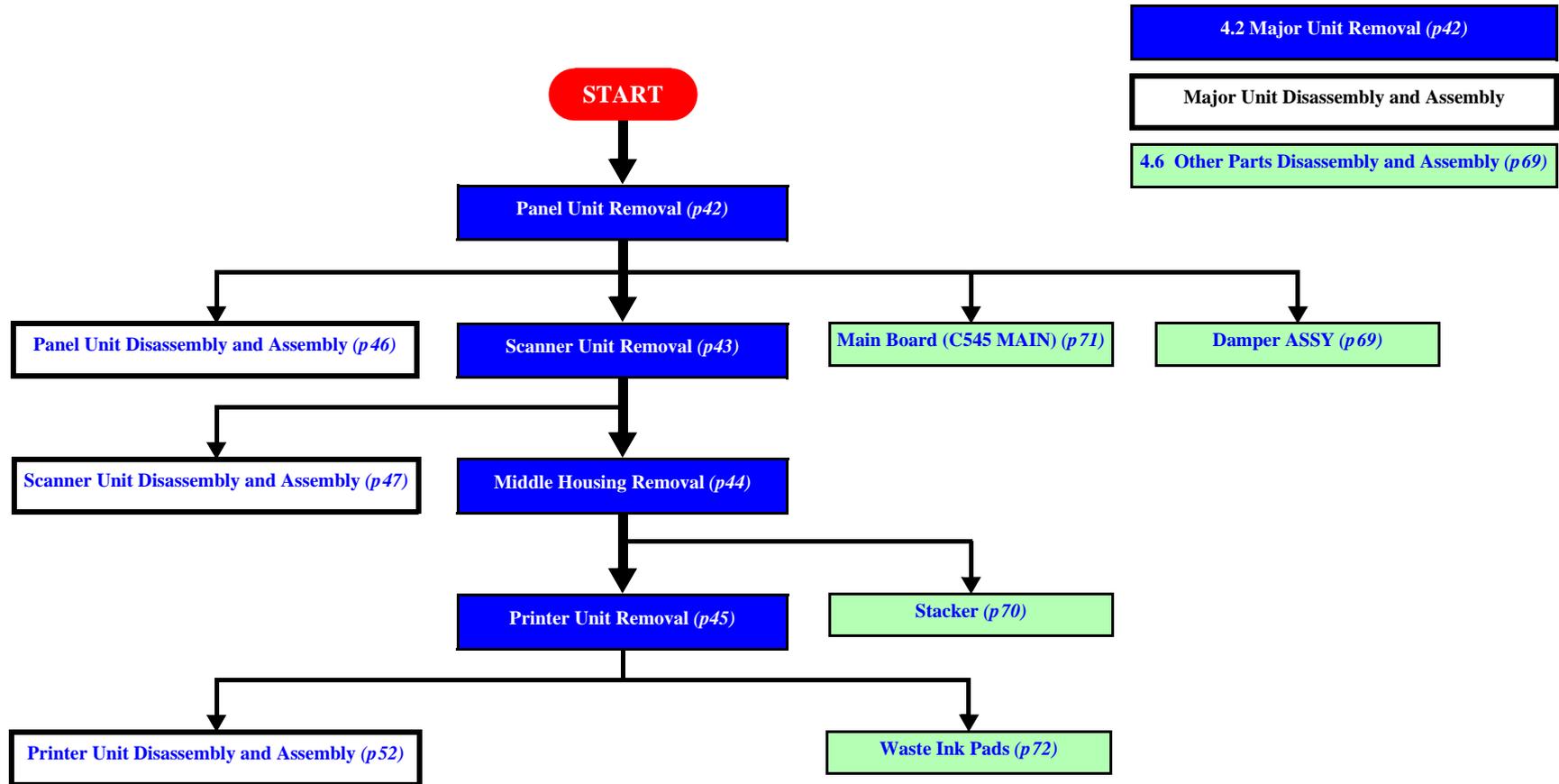


Table 4-2. Check List

Classification	Part	Check item	Check column
On line test	On line test	Operation is normal?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Copy	Copy	Local copy is normal?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Adjustment	Designated adjustment items	Adjustment condition is suitable?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Lubrication	Designated lubrication items	Lubrication is done at designated place?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
		Lubrication volume is suitable?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Function	Firmware version	The newest version	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Dispatch packing	Ink cartridge	Ink cartridge is normally installed?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	Waste Ink Pads	Remained life of waste ink pads are sufficient?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
	Protection during distribution	Printer CR is in the cap position?	<input type="checkbox"/> OK / <input type="checkbox"/> NG
Scanner CR is locked?		<input type="checkbox"/> OK / <input type="checkbox"/> NG	
Others	Attached goods	All of attached goods from users are packed?	<input type="checkbox"/> OK / <input type="checkbox"/> NG

### 4.1.4 Procedure for CX6300/CX6400/CX6500/CX6600 Disassembly

The following flowchart shows the step-by-step disassembly procedure. When disassembling each unit, see its corresponding page shown in the flowchart.



Flowchart 4-1. Procedure for PX-A650 Disassembly



For the procedure for disassembly and assembly of each major unit, see a flowchart of its section.



## 4.2 Major Unit Removal

### 4.2.1 Panel Unit Removal

1. Remove USB Connector Cover, then remove USB Cable from PX-A650 main body.
2. Remove 2 screws securing Front Housing.
3. Remove Panel Unit FCC from Main Board.
4. Remove Panel Unit from Printer main body.

CHECK  
POINT



Panel Unit is secured by hooks in 9 places in Middle Housing circumference (see the right figure).

5. Remove Panel Unit and Front Housing from printer main body.

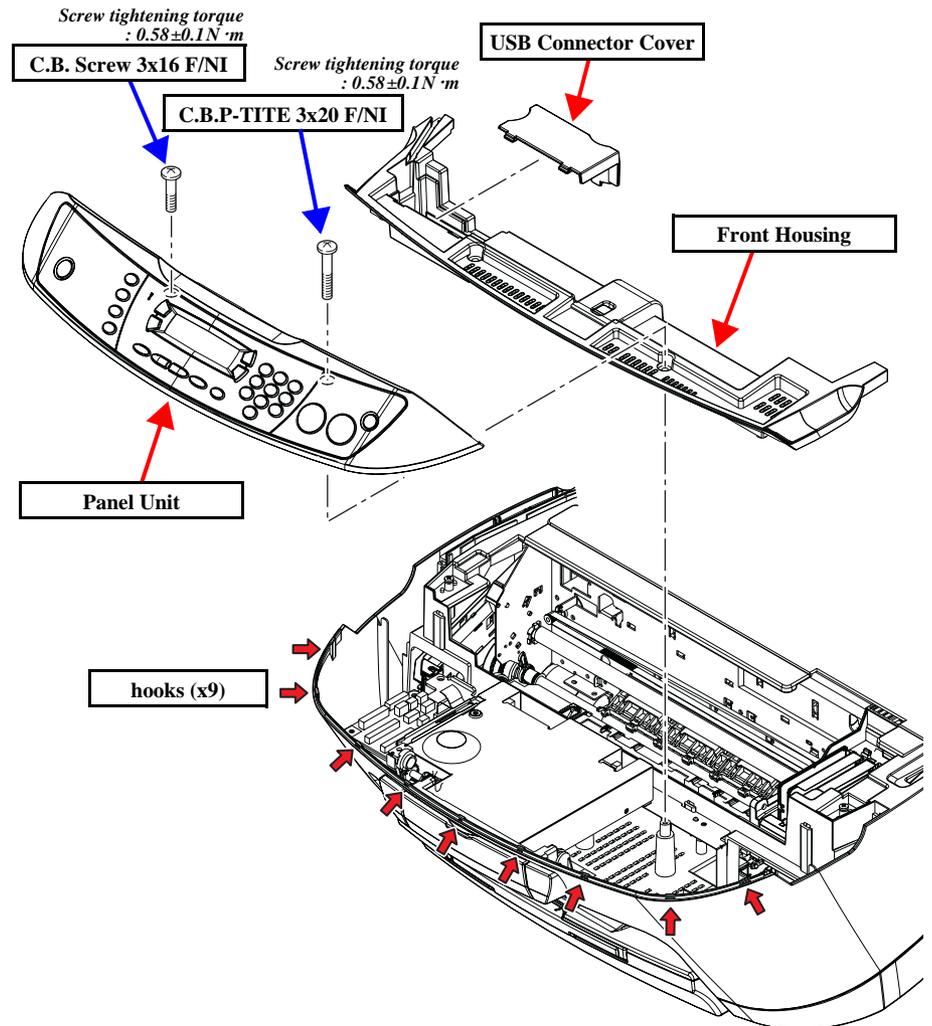


Figure 4-1. Panel Unit Removal

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### 4.2.2 Scanner Unit Removal

1. Panel Unit Removal. (See p.42)
2. Remove FFC Pressing Plate. (See Figure 4-2.)
3. Remove 2 FCCs (CN5 and CN11) of Scanner Unit from Main Board. (See Figure 4-37.)
4. Remove FCC Cover.
5. Remove the screw securing the grounding wire of the Scanner Unit.
6. Remove 2 screws securing Scanner Unit and Hinge.
7. Slowly remove Scanner Unit upward.



- When Scanner Unit connection of Hinge is opened, carry out the following steps for assembly:
  1. Remove Hinge from Middle Housing (screw x2 used).
  2. Install the connection on the Hinge side to Scanner Unit.
  3. Install Scanner Unit with Hinge installed to Middle Housing, then close Scanner Unit.
  4. Temporarily remove Scanner Unit upward, then tighten screws on Hinge Unit.
- Install the FFC Pressing Plate so that the Head FFC (CN16, 13) and the FFC (CN5, 11) of the scanner are fixed securely.

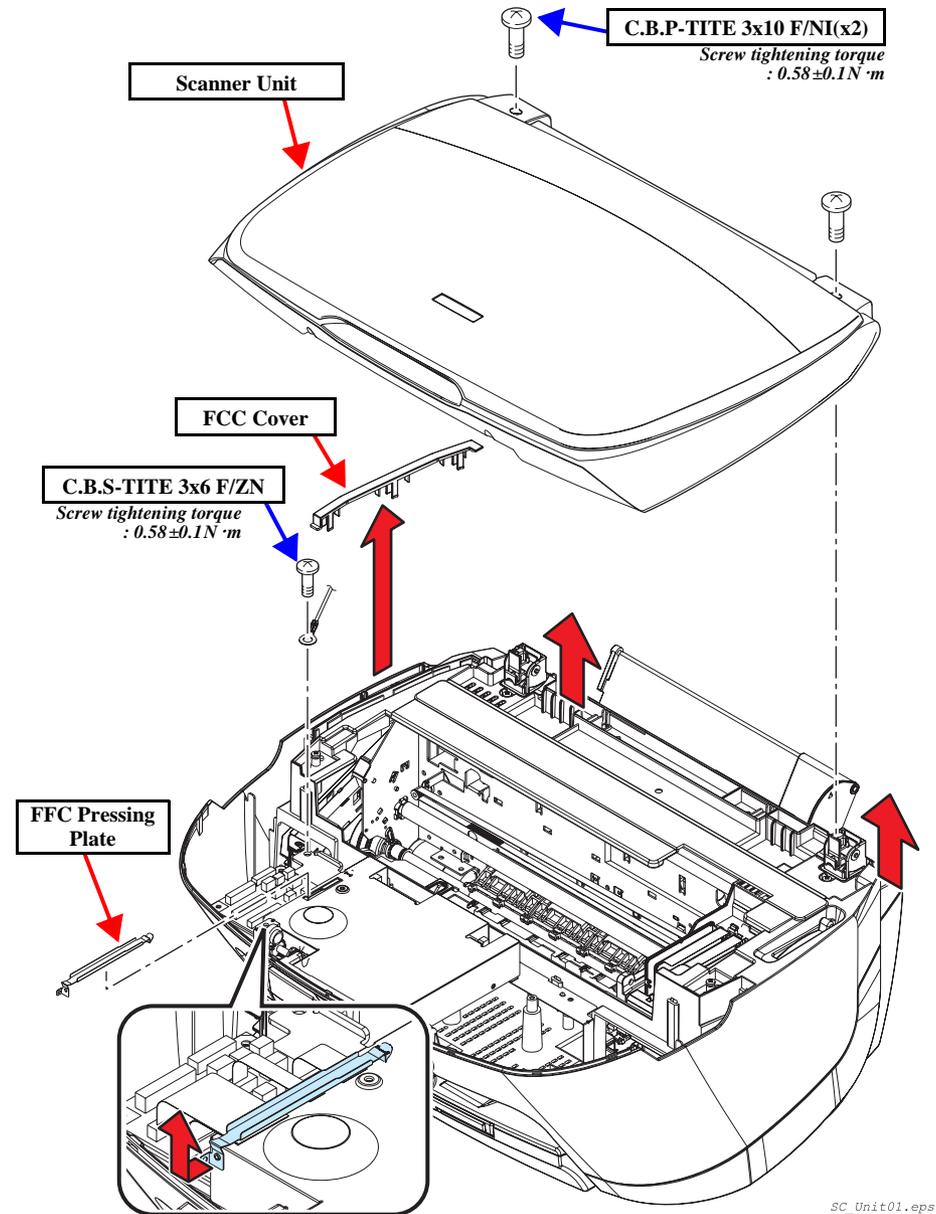
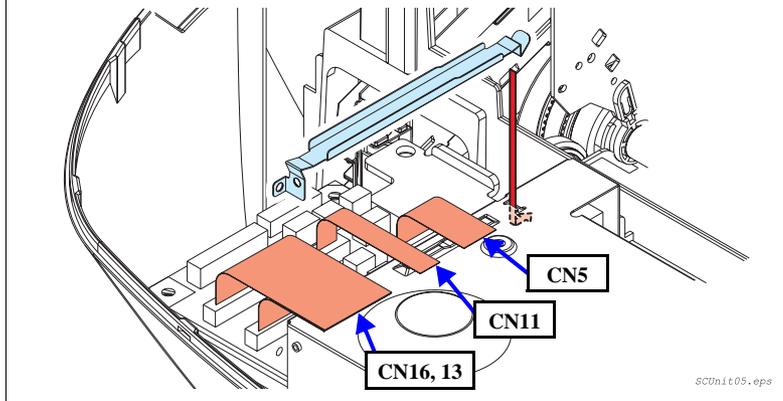


Figure 4-2. Scanner Unit Removal

### 4.2.3 Middle Housing Removal

1. *Panel Unit Removal.* (See p.42)
2. *Scanner Unit Removal.* (See p.43)
3. Remove all connectors of Main Board. (See Figure 4-37.)
4. Remove screws on Hinges, then remove 2 Hinges from Middle Housing.
5. Set PG Lever toward you.
6. Remove 4 screws, then remove Middle Housing from Lower Housing.



When installing Middle Housing, carefully handle the connector on the right side.

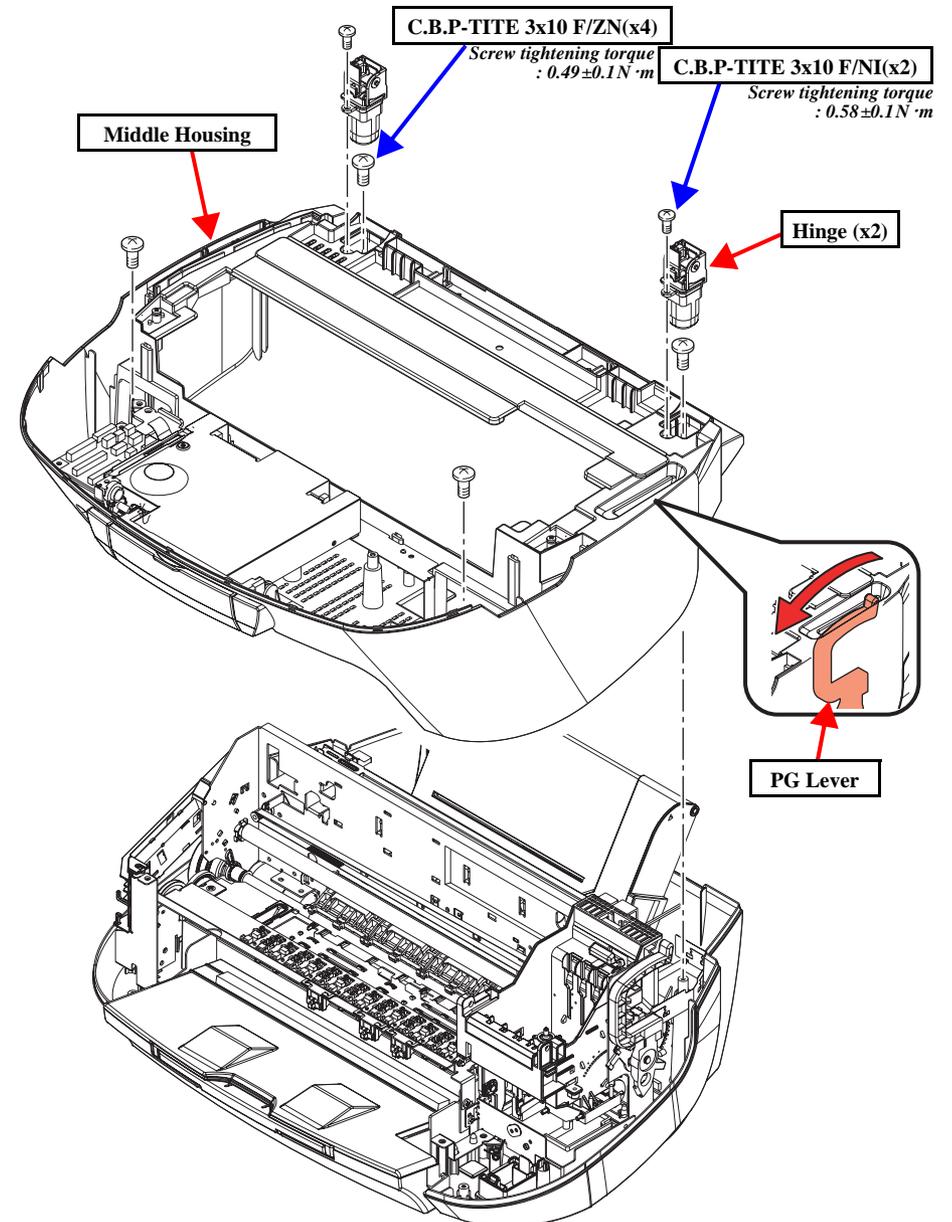


Figure 4-3. Middle Housing Removal

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### 4.2.4 Printer Unit Removal

1. *Panel Unit Removal. (See p.42)*
2. *Scanner Unit Removal. (See p.43)*
3. *Middle Housing Removal. (See p.44)*
4. On the rear side of the printer, remove 2 screws, then remove Power Cable Cover.
5. Grasp the both edges of Ink Tube Retainer, then remove the ink tube from the tube on Waste Ink Pads side.
6. Remove 5 screws, then remove Printer Unit from Lower Housing.

**CAUTION** !  
 The frame on the left side of the printer is composed of Main Frame, FFC Holder, and Left Auxiliary Frame. When lifting Printer Unit, be sure to hold Main Frame Unit. Do not hold FFC Holder or Left Auxiliary Frame.

**REASSEMBLY** ↺  
 For Ink Tube installation, the tip of the Ink Tube shall be set in a specified position. If the Ink Tube is set in a position other than the specified one, ink may be leaked.

**ADJUSTMENT REQUIRED** ⚙️  
 After installing Printer Unit, perform the adjustment seeing the following:  
 ■ [List of Adjustment Items by Unit/Part \(p.76\)](#)

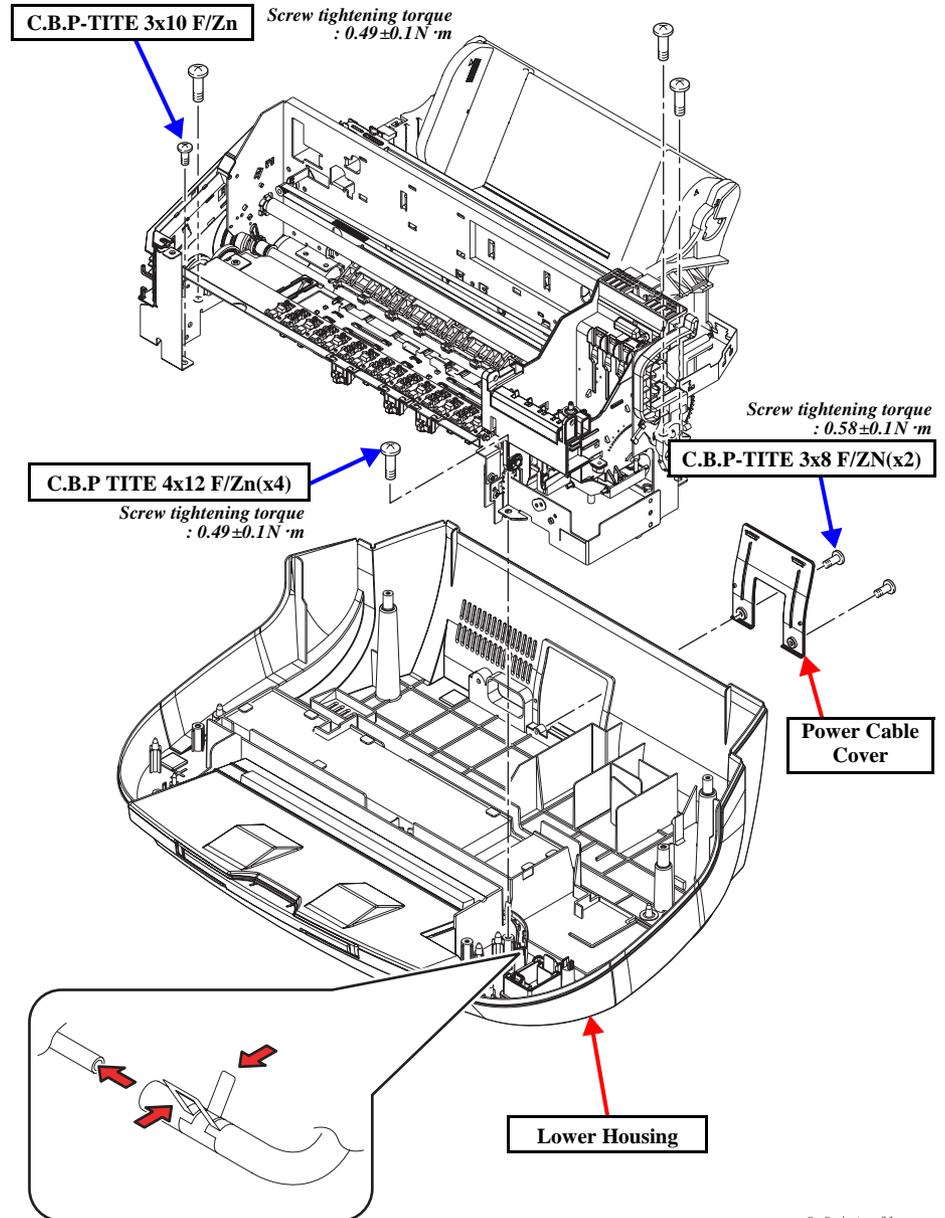


Figure 4-4. Printer Unit Removal



### 4.3 Panel Unit Disassembly and Assembly

1. *Panel Unit Removal. (See p.42)*
2. Remove Panel Contact from Panel Frame.
3. Remove 10 screws from Panel Unit bottom face.
4. Release hooks in 4 places on the toward-you side, then separate them from Panel Housing.
5. Remove 2 screws.
6. Release hooks in 11 places, then remove Panel Cover.



**To avoid degrading conductivity of Panel Board switch contact points, do not touch them with bare hands.**



**For installation of Panel Unit to Panel Housing, install it after inserting upper hooks in 2 places. In this case, Panel Cover obstructs the installation, so install it finally.**

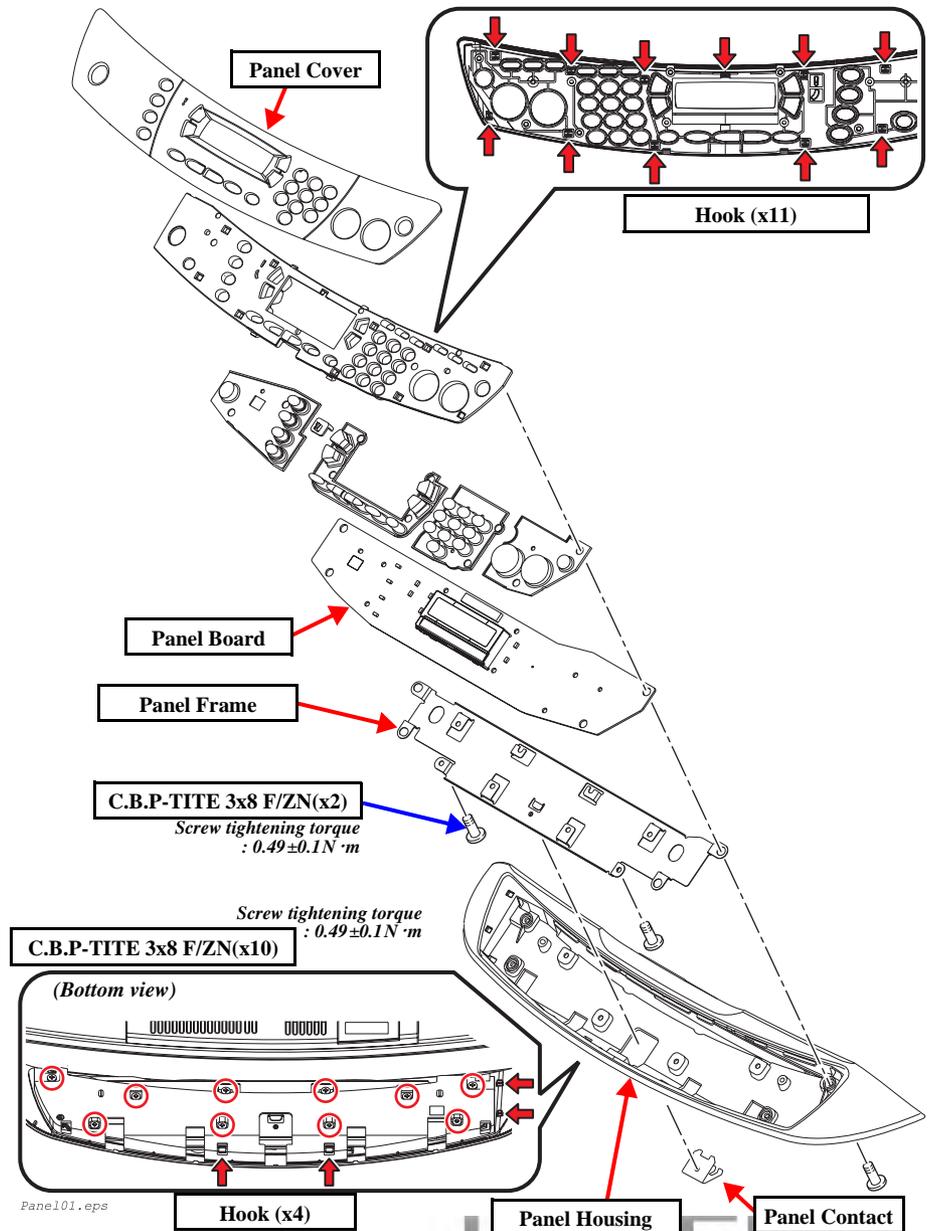
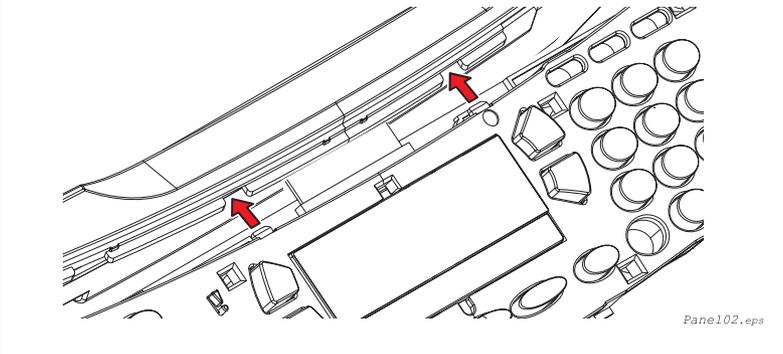
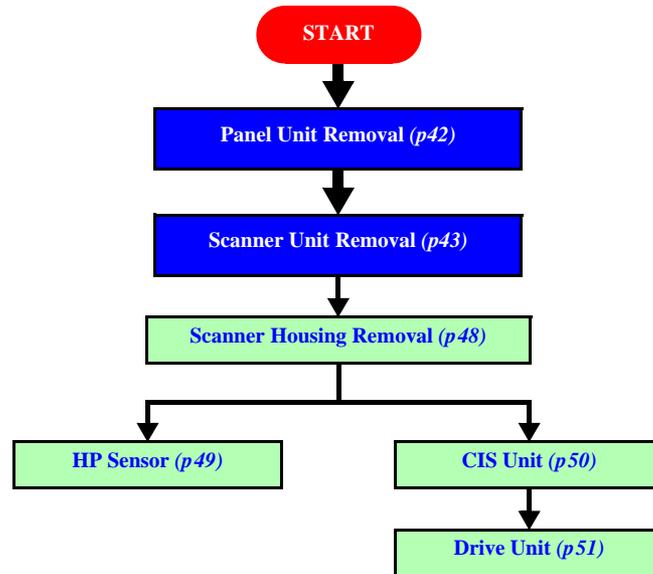


Figure 4-5. Panel Unit Disassembly

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## 4.4 Scanner Unit Disassembly and Assembly



Flowchart 4-2. Procedure for Scanner UNIT Disassembly

**CAUTION**



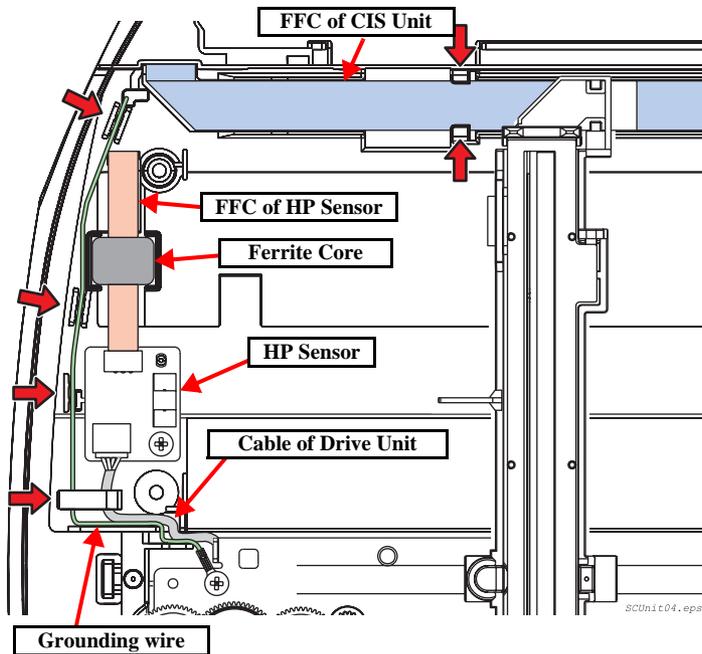
- Perform disassembly/assembly of Scanner Unit in a place free of debris and dust. If possible, performance of operations in a clean room or on a clean bench is preferred.
- There shall be no spots or scratches on the glass of the originals rest. In particular, confirm that there are no spots on the inner glass face when installing Scanner Housing. And, take care so that the originals rest surface may not be scratched by putting protective sheet or paper on the glass face during operation.

### 4.4.1 Scanner Housing Removal

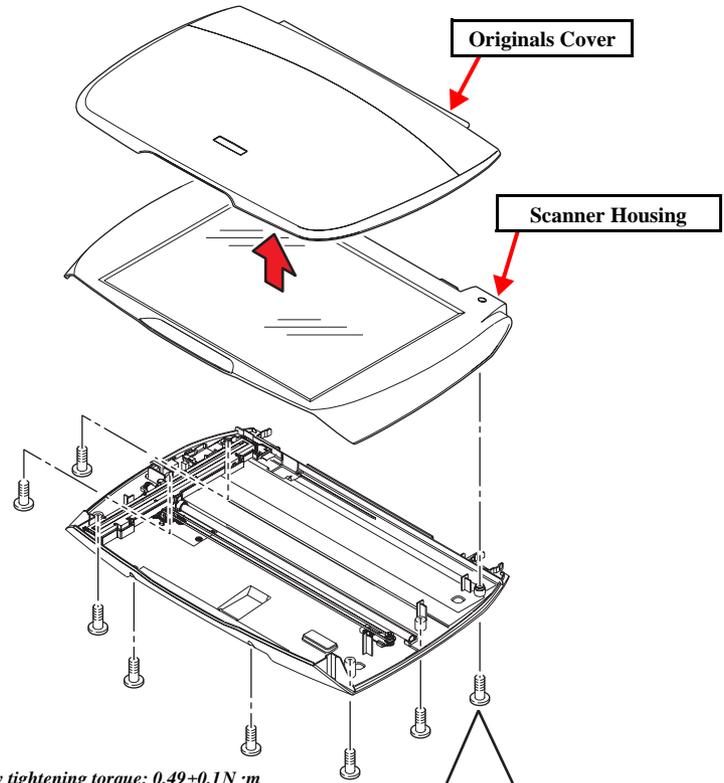
1. Panel Unit Removal. (See p.42)
2. Scanner Unit Removal. (See p.43)
3. Remove Originals Cover.
4. Remove 8 screws from Scanner Unit bottom face.
5. Remove Scanner Housing with originals rest face turned up.



- Confirm that there are no spots on the inner glass face.
- There are lubrication points. Perform the lubrication seeing the following:  
**6.3.2 Scanner Lubrication Point (p98)**
- Before screw tightening, check leading of FFCs and lead wires.



- Tighten the screws in the order indicated in Figure 4-6.



Screw tightening torque:  $0.49 \pm 0.1N \cdot m$

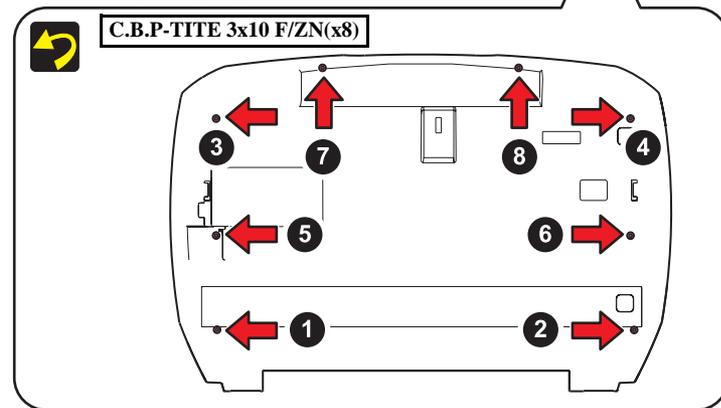


Figure 4-6. Scanner Housing Removal

## 4.4.2 HP Sensor

1. *Scanner Housing Removal.* (See p.48)
2. Remove FCC of HP Sensor Board.
3. Remove 1 screw securing HP Sensor Board.
4. Move CSI Unit sideways, and remove Drive Unit connector, then remove HP Sensor Board.

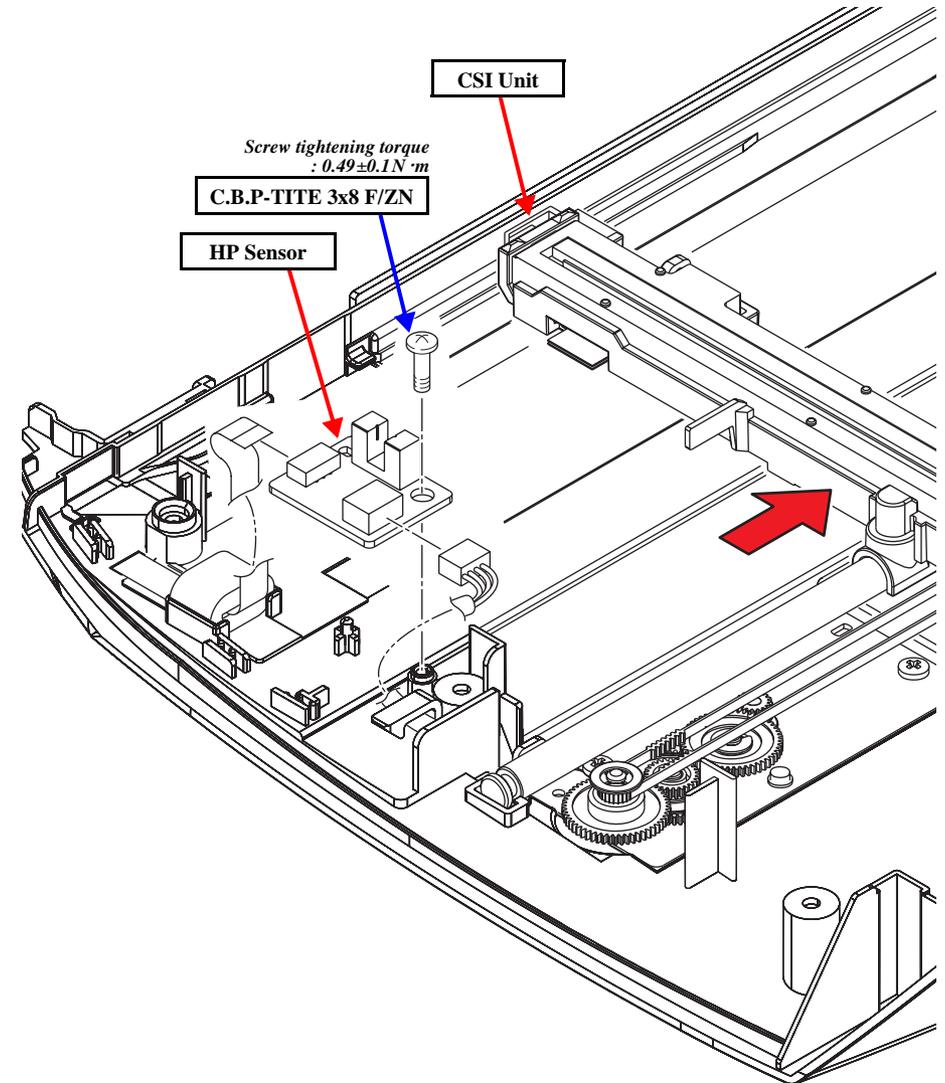


Figure 4-7. HP Sensor Removal

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### 4.4.3 CIS Unit

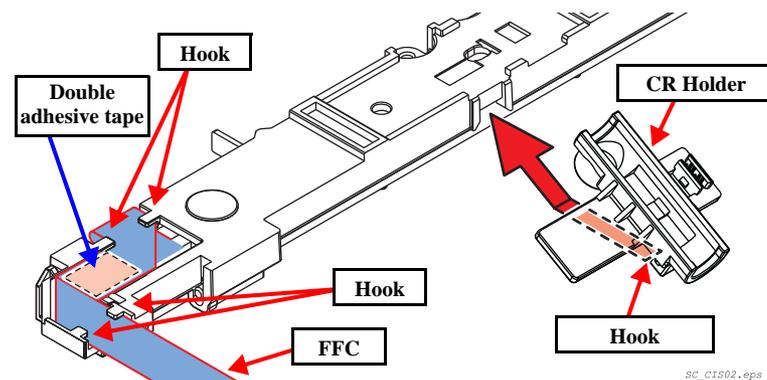
1. *Scanner Housing Removal.* (See p.48)
2. Push Driven Pulley Securing Plate to loosen the tension of the Timing Belt, then remove Timing Belt from Driven Pulley.
3. Remove FFC from FFC connector of CIS Unit.
  - When the CIS Unit is to be removed
4. Lift the CIS unit, turn it by 90 degrees and remove it from the Main Carriage.
  - When the Timing Belt is to be removed
4. Remove Belt Clamp from the hook of CR Holder, and remove the Timing Belt.



**When you remove the CIS unit, take care not to lose either of the two CIS Springs.**



- There are lubrication points. Perform the lubrication seeing the following:  
[6.3.2 Scanner Lubrication Point \(p98\)](#)
- Install the FFC by referring to the illustration below.
- To install the CR Holder, engage the hook on the side opposite to the screw hole first and then tighten the screw securely.



- Install the Timing Belt as shown in Figure 4-8.

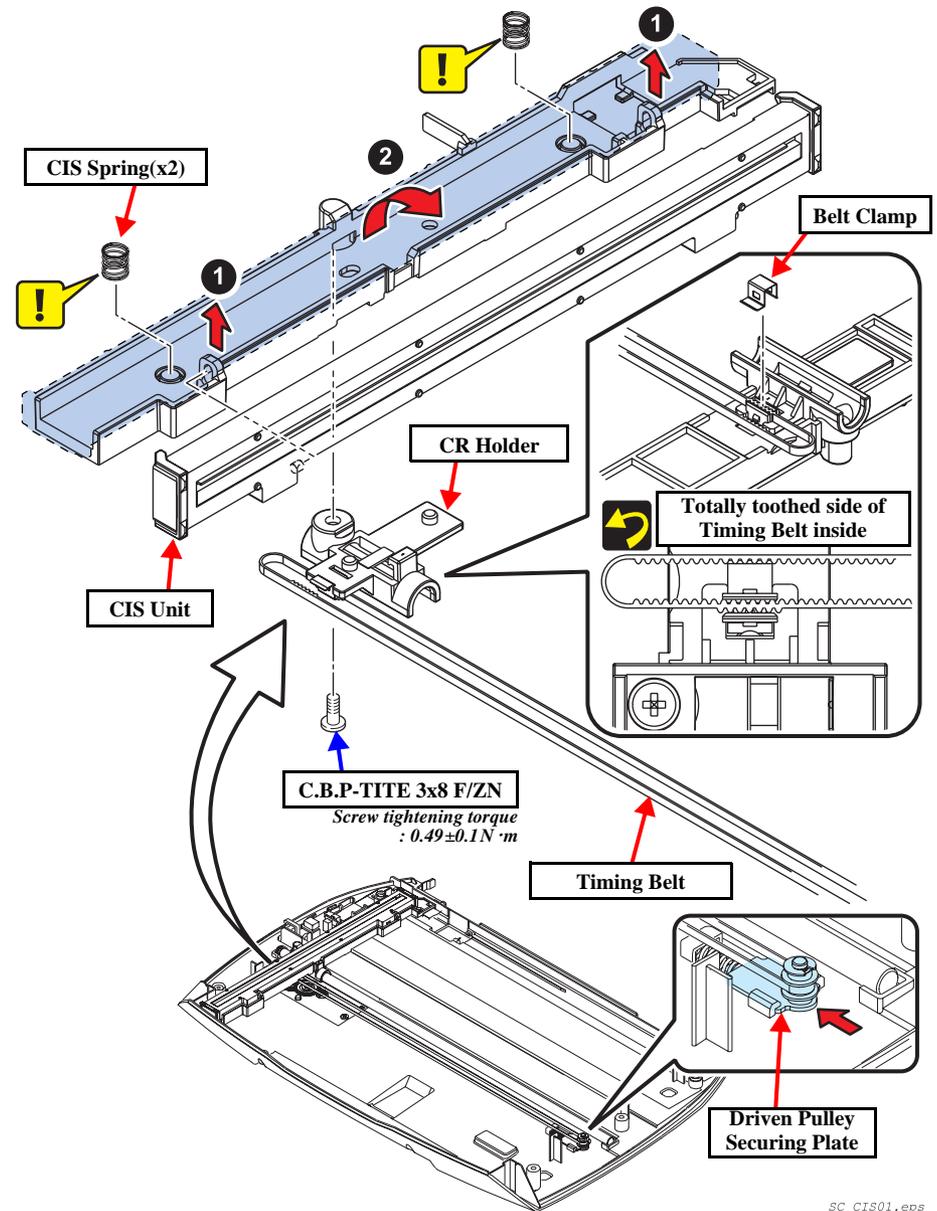


Figure 4-8. CIS Unit Removal

#### 4.4.4 Drive Unit

1. *Scanner Housing Removal. (See p.48)*
2. Remove the CIS Unit from the Scanner Guide Shaft. *(See p.50)*
3. Remove Scanner Guide Shaft.
4. Remove 2 screws, then remove Drive Unit.
5. Remove Drive Unit connector from HP Sensor Board.



Lead the cable of the Drive Unit and the grounding wire as shown below to ensure that the cable does not interfere with the CIS Unit when the CIS Unit is at the home position.

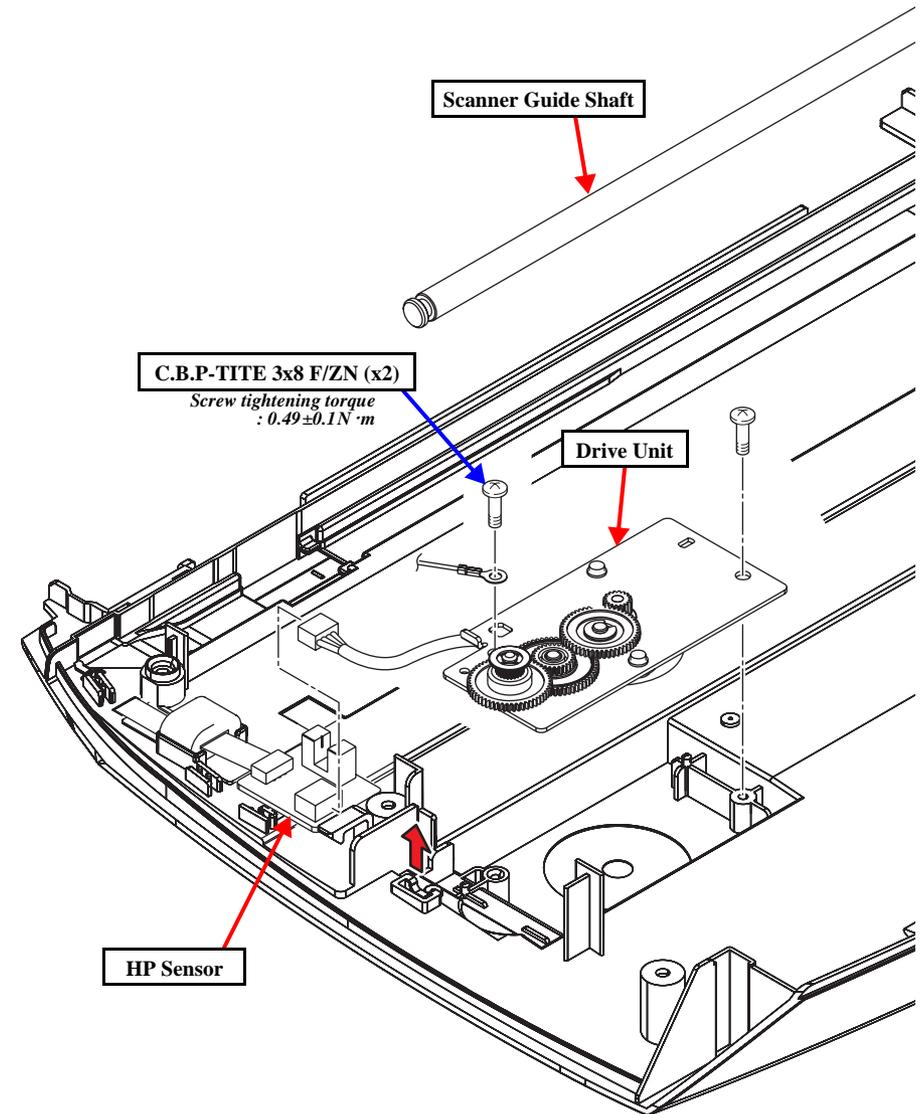
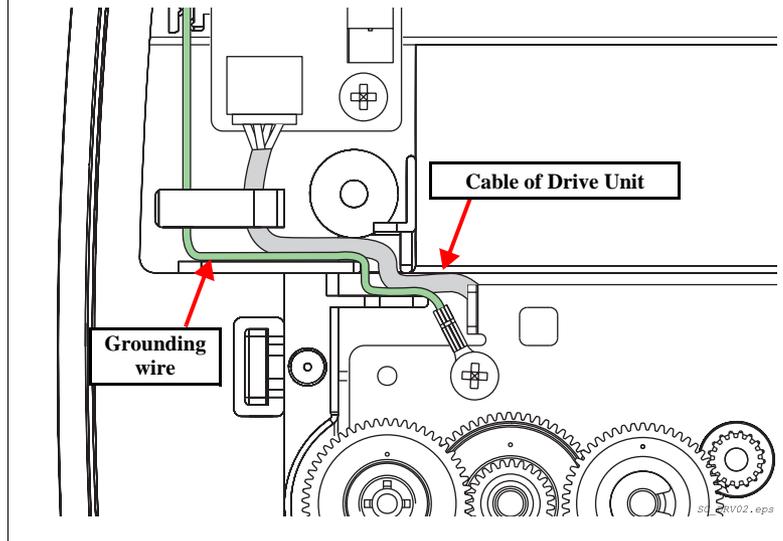
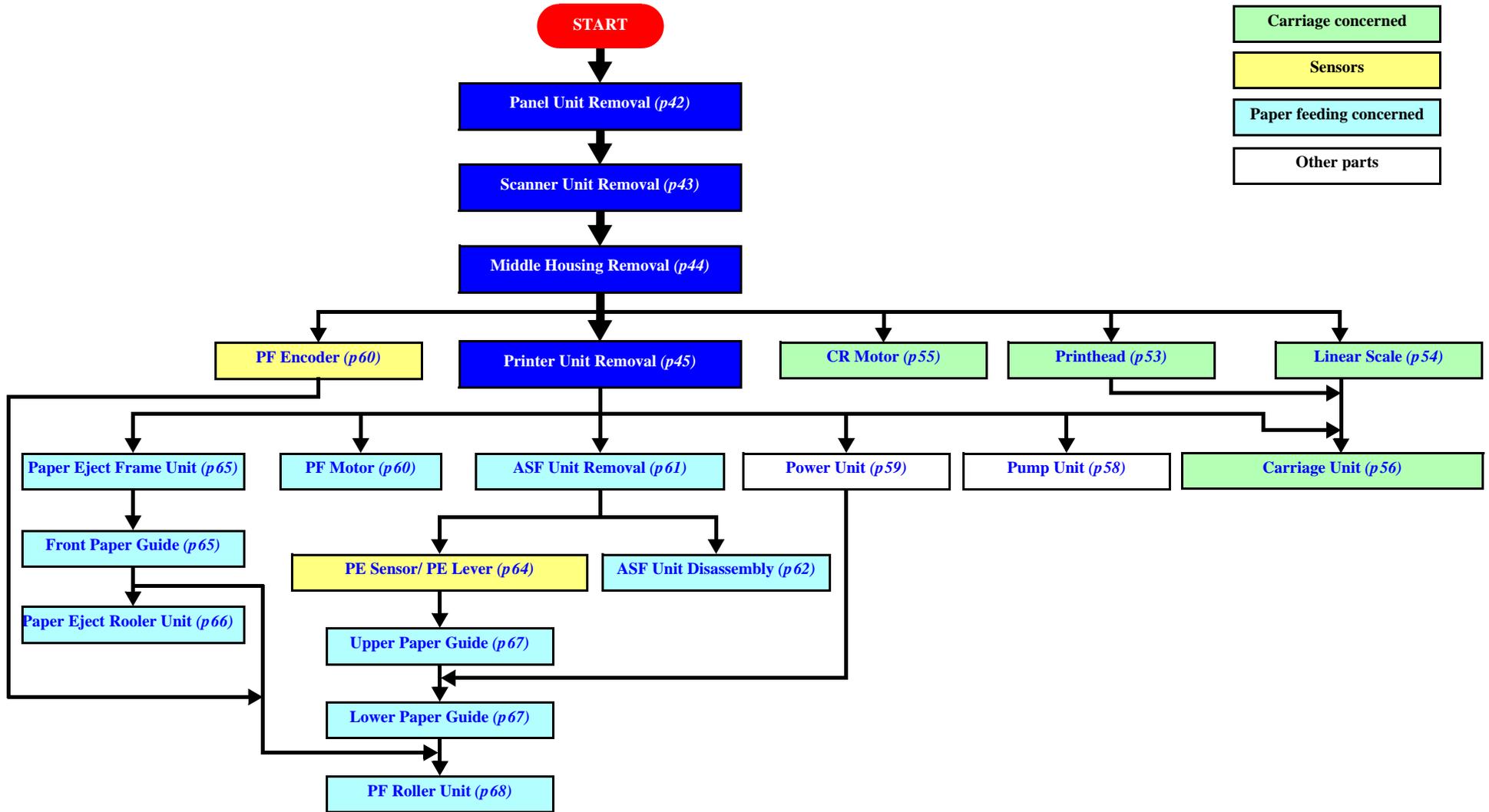


Figure 4-9. Scanner Unit Disassembly

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## 4.5 Printer Unit Disassembly and Assembly



Flowchart 4-3. Procedure for Printer Unit Disassembly

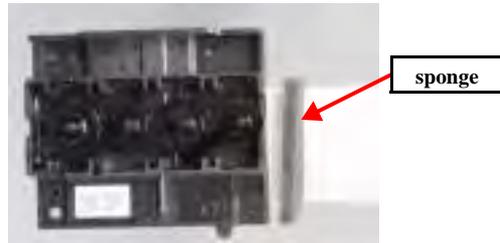


### 4.5.1 Printhead

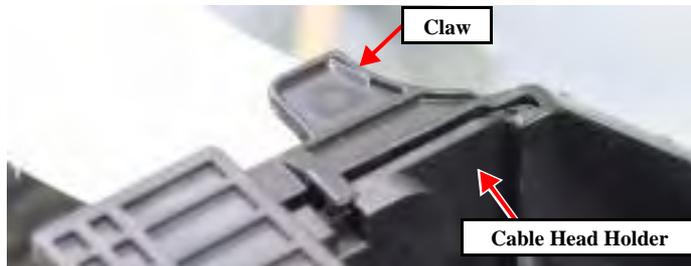
1. Middle Housing Removal. (See p.44)
2. Push Carriage Lock Lever forward, then shift CR Unit to the left side.
3. On the right side of the CR Unit, release hooks in 4 places of Cable Head Holder, then remove Cable Head Holder from CR Unit.
4. Remove 2 screws, then remove Fastener Head to the left side of the CR Unit.
5. Take out Printhead from CR Unit, then remove 2 FCCs.



- When replacing FCC, be sure to put sponge on Head FCC.



- When installing Cable Head Holder, ensure that the claw of the FCC Guide is caught in Cable Head Holder.



After installing Printhead, perform the adjustment seeing the following:

- List of Adjustment Items by Unit/Part (p.76)

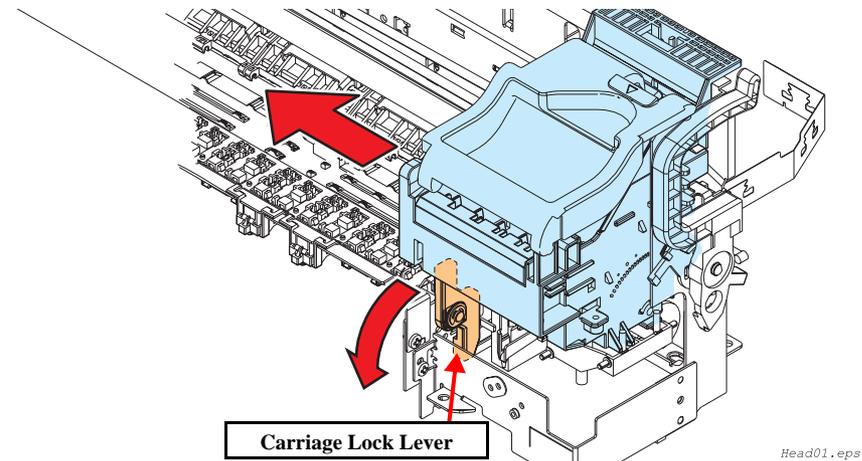


Figure 4-10. Movement of carriage

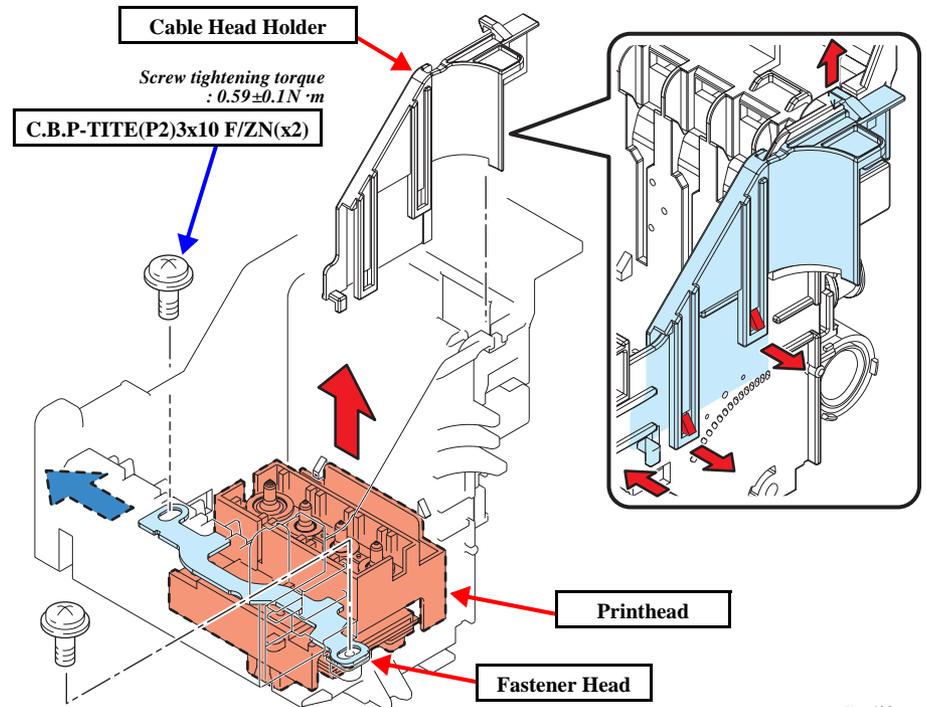
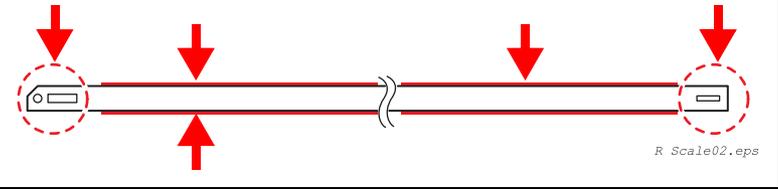


Figure 4-11. Printhead Removal

### 4.5.2 Linear Scale



When holding Linear Scale with hands, do not touch the read face by holding both the edges or both the upper and lower parts. Take care so that the read face may not be stained or scratched.



1. *Middle Housing Removal.* (See p.44)
2. Remove Linear Scale Extension Spring on the left side of the printer from Printer Frame hook.
3. On the right side of the printer, remove Linear Scale from Printer Frame.
4. Pull out the Linear Scale from the Carriage Unit leftward.
5. Rotate Linear Scale 90 degrees, then remove it along with Extension Spring from Printer Frame.



Linear Scale shall be passed through CR Encoder on the backside of the CR Unit.

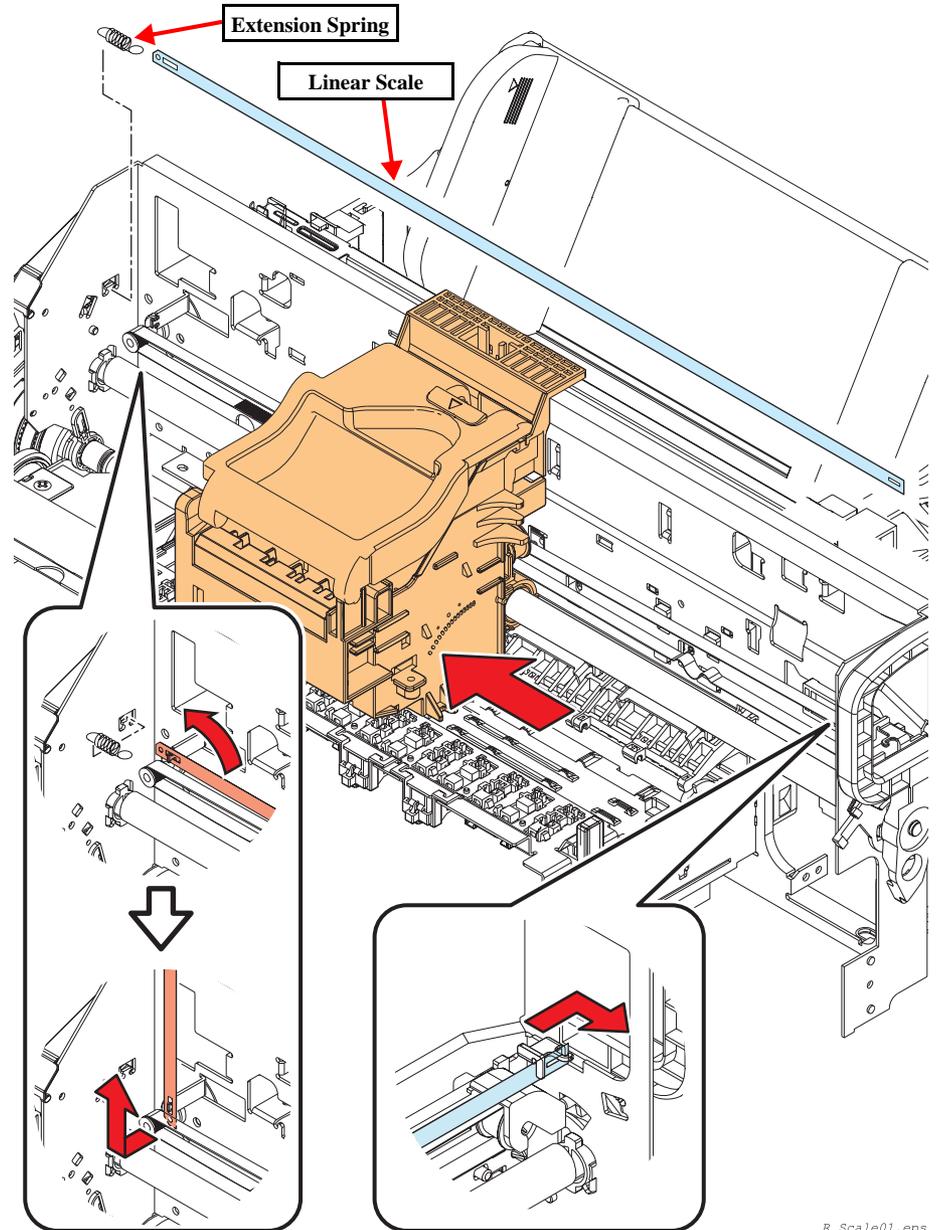
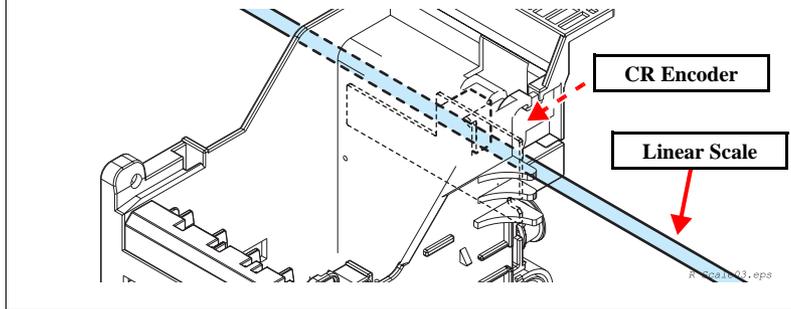


Figure 4-12. Linear Scale Removal



### 4.5.3 CR Motor

1. *Middle Housing Removal.* (See p.44)
2. On the rear side of the printer, remove Driven Pulley Holder Extension Spring. (See Figure 4-13.)
3. Remove Timing Belt from CR Motor. (See Figure 4-14.)
4. Remove 1 screw, then remove CR Motor from Printer Frame.

**CAUTION**


Carefully perform operations so that Linear Scale may not be scratched or stained.

**REASSEMBLY**


When installing CR Motor, install it with the label of the motor facing upwards.

**ADJUSTMENT  
REQUIRED**


When replacing CR Motor, perform the adjustment seeing the following:

- [List of Adjustment Items by Unit/Part \(p.76\)](#)

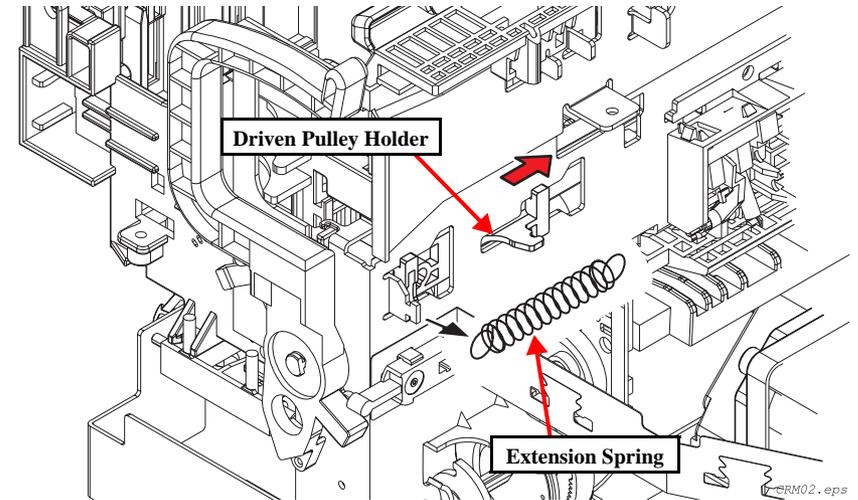


Figure 4-13. CR Motor Removal 1

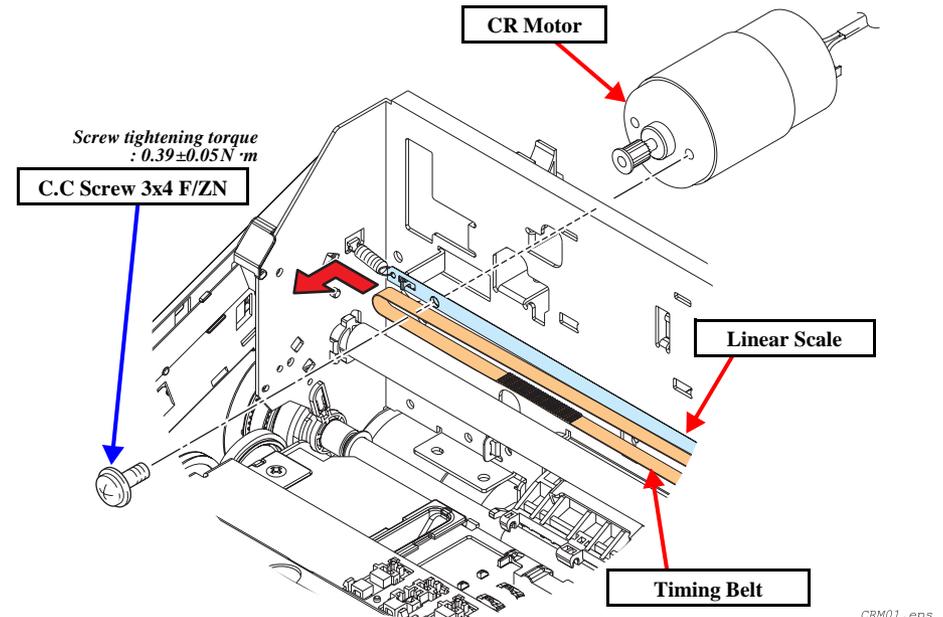


Figure 4-14. CR Motor Removal 2

### 4.5.4 Carriage Unit

1. Middle Housing Removal. (See p.44)
2. Printer Unit Removal. (See p.45)
3. Remove Printhead. (See p.53)
4. Remove Linear Scale. (See p.54)
5. On the rear side of the printer, remove Extension Spring of Driven Pulley Holder. (See Figure 4-37.)
6. Remove Timing Belt from CR Motor. (See Figure 4-37.)
7. Remove 2 screws of the FFC Holder on the left side of the printer, then remove FFC Holder from Printer Frame. (See Figure 4-15.)
8. On the left side of the printer, remove 1 screw and retaining ring securing the Bushing of CR Guide Shaft.
9. Rotate the Bushing backward, then remove it from Printer Frame.
10. Move Carriage Unit to the center of the printer, and release the hook of PG sensor, then remove the PG Sensor from Printer Frame.
11. On the right side of the printer, remove retaining ring, then remove PG Lever, Torsion Spring and Leaf Spring. (See Figure 4-16.)

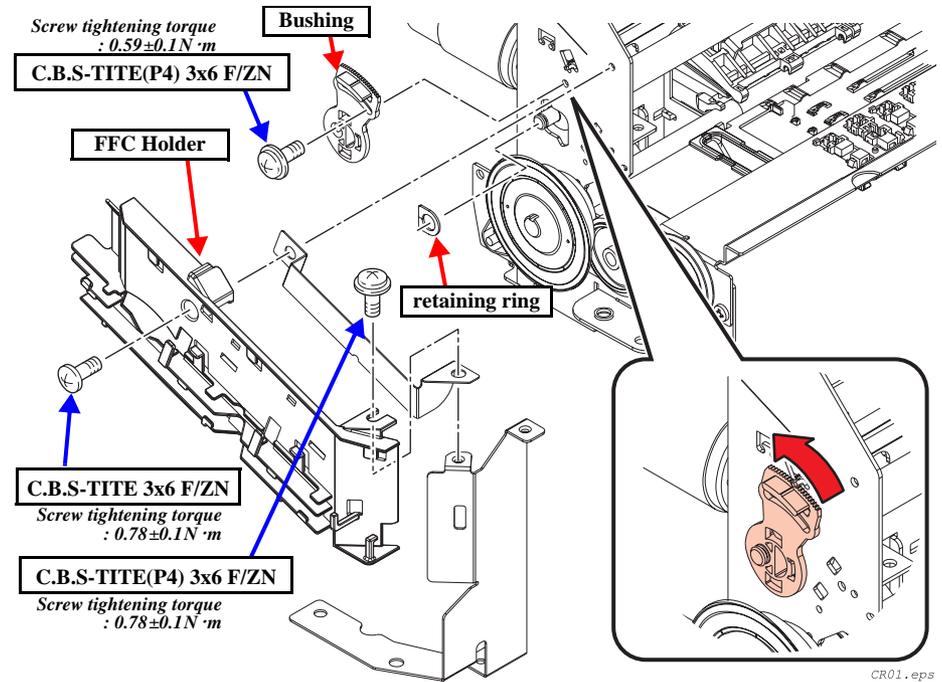
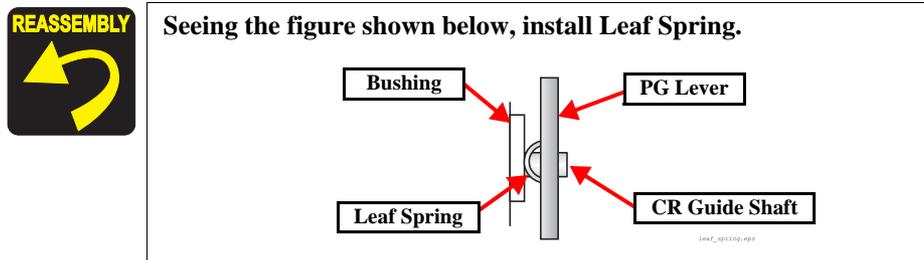


Figure 4-15. Carriage Unit Removal (Left Frame)



12. Remove 1 screw securing the Bushing of CR Guide Shaft, and rotate it backward, then remove it from Printer Frame.
13. Slowly pull out CR Guide Shaft to the right side of the printer.

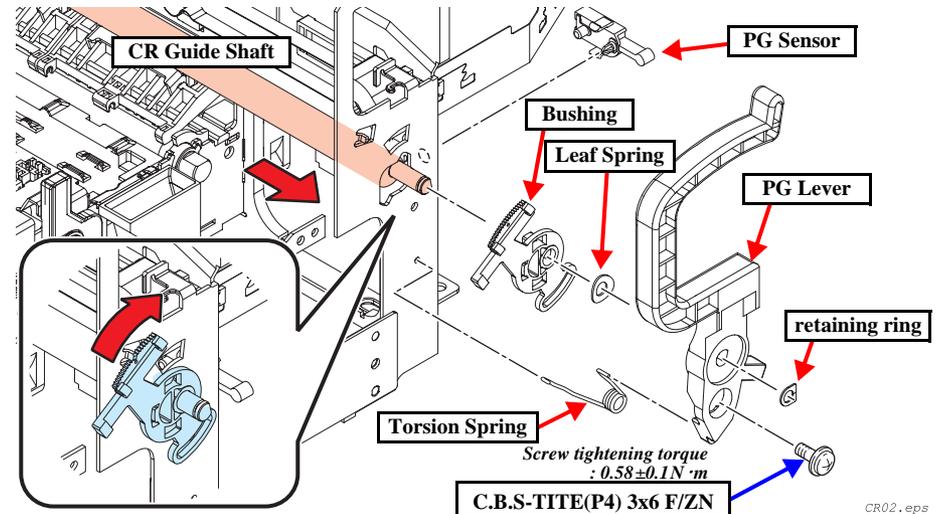


Figure 4-16. Carriage Unit Removal (Right Frame)

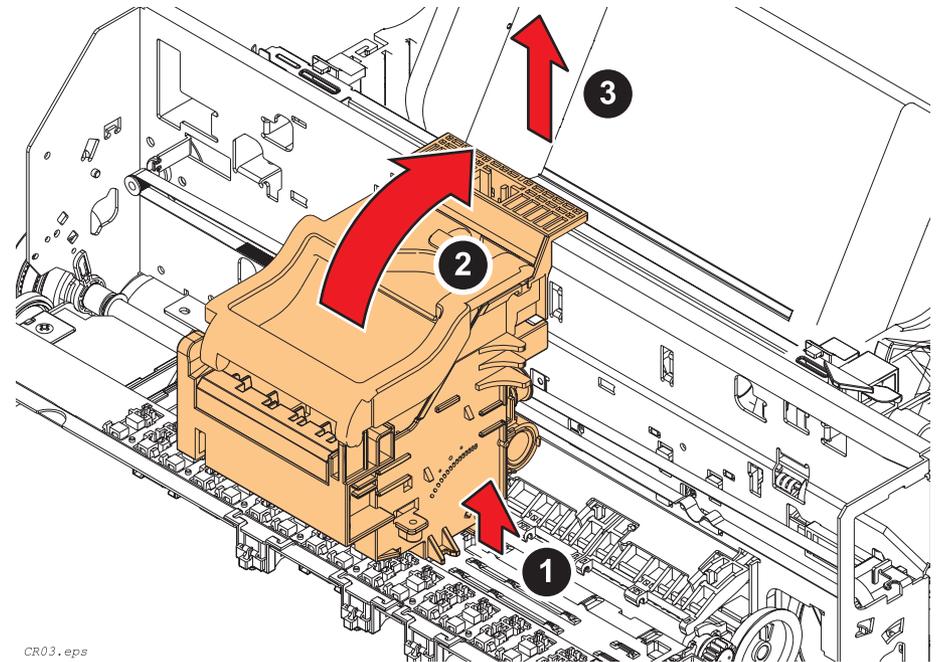
14. After lifting Carriage Unit a little, rotate it 90 degrees, then remove Carriage Unit from Printer Frame.
15. On the backside of the Carriage Unit, remove FFC from Relay Board.
16. On the backside of the Carriage Unit, remove Timing Belt.



- There are lubrication points. Perform the lubrication seeing the following:  
[6.3.3 Printer Lubrication Point \(p99\)](#)
- CR Belt shall be installed to Carriage Unit at a position where the teeth are on upper and lower parts of the belt.



- After installing Carriage Unit, perform the adjustment seeing the following:
- [List of Adjustment Items by Unit/Part \(p. 76\)](#)



CR03.eps

Figure 4-17. Carriage Unit Removal

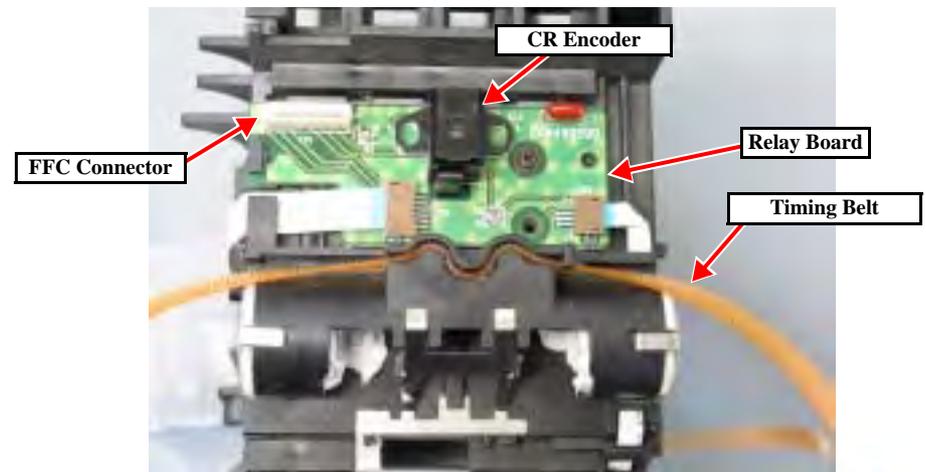


Figure 4-18. Carriage Unit Disassembly

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### 4.5.5 Pump Unit

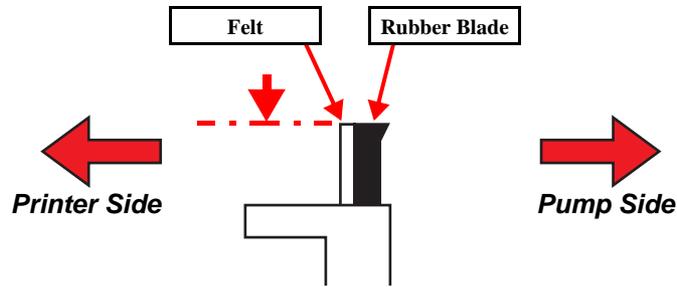
1. Middle Housing Removal. (See p.44)
2. Printer Unit Removal. (See p.45)
3. Remove 2 screws, then remove Ink System Frame from Printer Frame.
4. Pull out Wiper ASSY toward you.
5. Remove 2 screws, then remove Pump Unit from Printer Frame.



Use a pair of tweezers to replace Cleaner Blade. While doing this, do not touch Printhead with the tweezers. In addition, do not touch the Printhead with bare hands.



- There are lubrication points. Perform the lubrication seeing the following:  
**6.3.3 Printer Lubrication Point (p99)**
- Install a gear seeing Figure 4-19. When it is rotated, Wiper ASSY shall move smoothly.
- The rubber side of the Cleaner Blade shall be in the direction of the pump, and Felt and Rubber Blade shall be flush with each other.



Pomp02.eps

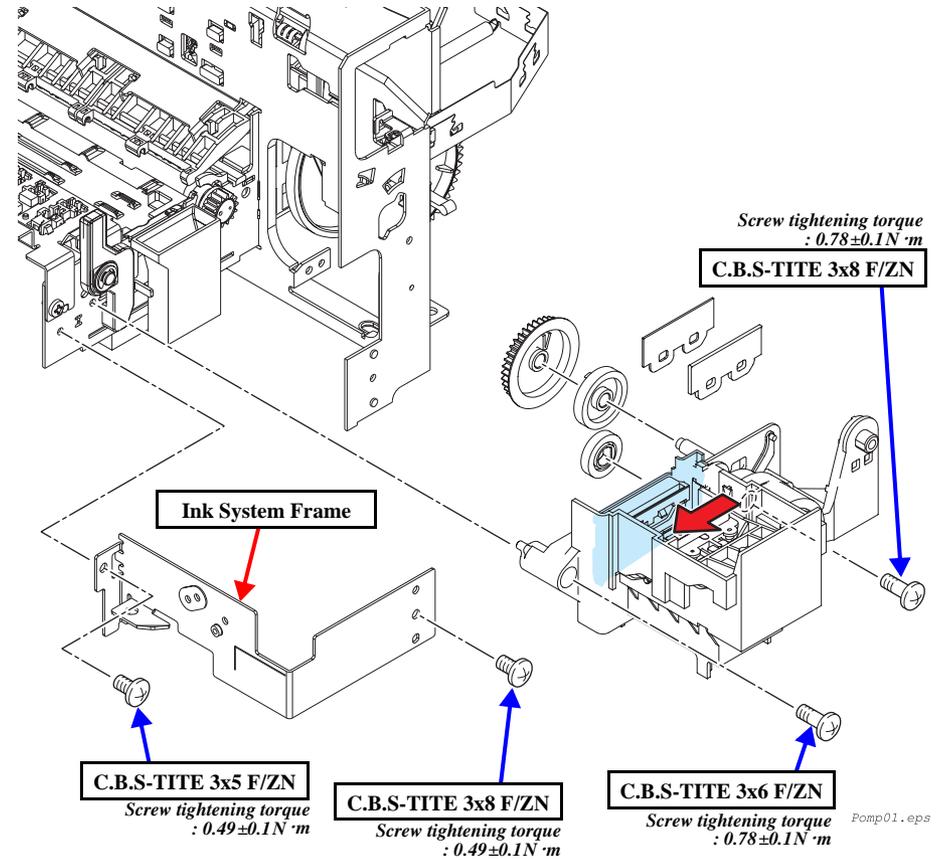


Figure 4-19. Pump Unit Removal



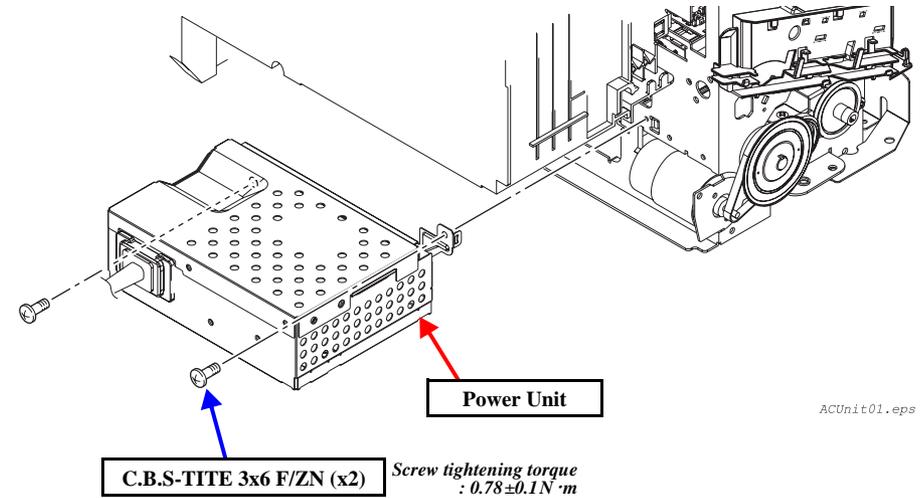
## 4.5.6 Power Unit

1. *Panel Unit Removal. (See p.42)*
2. *Scanner Unit Removal. (See p.43)*
3. *Middle Housing Removal. (See p.44)*
4. *Printer Unit Removal. (See p.45)*
5. Remove the lead wire of Power Unit from the FCC Holder on the left side of the printer.
6. On the rear of the printer, remove 2 screws, then remove Power Unit from Printer Frame.



After replacing Power Unit, perform the adjustment seeing the following:

- [List of Adjustment Items by Unit/Part \(p. 76\)](#)



**Figure 4-20. Power Unit Removal**

### 4.5.7 PF Encoder

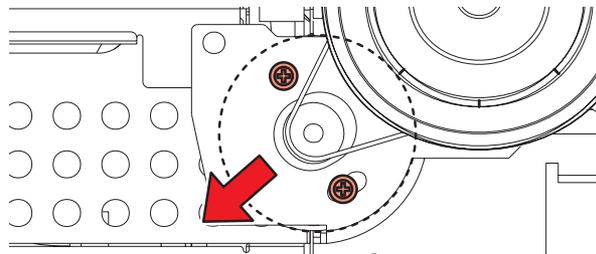
1. Middle Housing Removal. (See p.44)
2. Remove 2 screws of the FFC Holder on the left side of the printer, then remove the FCC Holder from Printer Frame. (See Figure 4-21.)
3. Remove FCC from the connector of PF Encoder Board.
4. Push Stopper from the inside of the printer, and slide PF Encoder at an angle downward, then remove it from Printer Frame.

### 4.5.8 PF Motor

1. Middle Housing Removal. (See p.44)
2. Printer Unit Removal. (See p.45)
3. Remove 2 screws, then remove PF Motor from Printer Frame.



- Install PF Motor according to the following steps:
  1. Install upper screw temporarily.
  2. Move PF Motor at an angle downward, then secure it while tightening the tension of the Timing Belt (fully tightening).

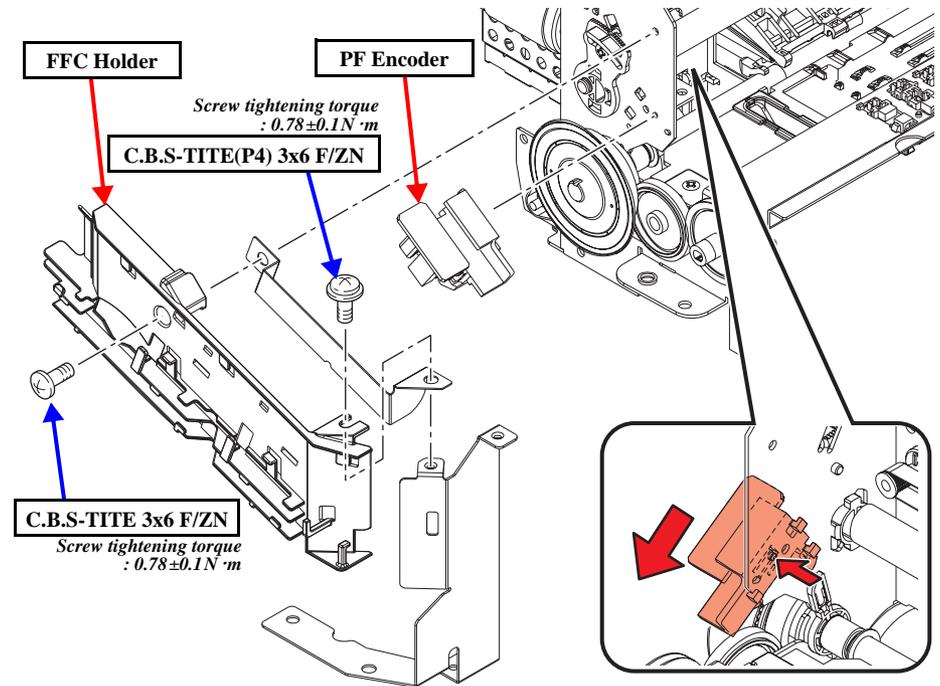


- When PF Motor is installed, the label of the PF Motor shall not be seen from the back of the Printer Mechanism. If it is seen, rotate the motor 180 degrees, then secure it.



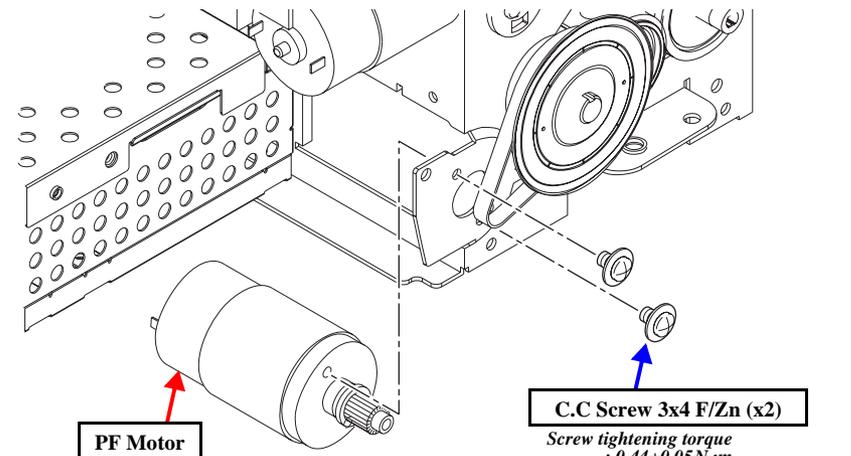
When having installed or replaced PF Motor, perform the adjustment seeing the following:

- List of Adjustment Items by Unit/Part (p.76)



PFenc01.eps

Figure 4-21. PF Encoder Removal



PFmotor01.eps

Figure 4-22. PF Motor Removal

## 4.5.9 ASF Unit Removal

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. Remove 1 screw securing fan in the lower printer and release the hook, then remove fan from Printer Frame.
4. Remove 1 screw securing central LD Roller Cover on the front side of the Printer Frame.
5. Slide LD Roller Cover sideways, and release it from the hook.
6. (If Pump Unit is installed) release the connection of Pump Unit and ASF Unit.
7. Remove PG Sensor connector, then release PG Sensor, fan, and PE Sensor lead wires.
8. Remove right and left screws securing ASF Unit, then remove ASF Unit upward from Printer Frame.



When securing ASF Unit to Printer Frame with screw, take care of the installing position of the LD Roller Cover.

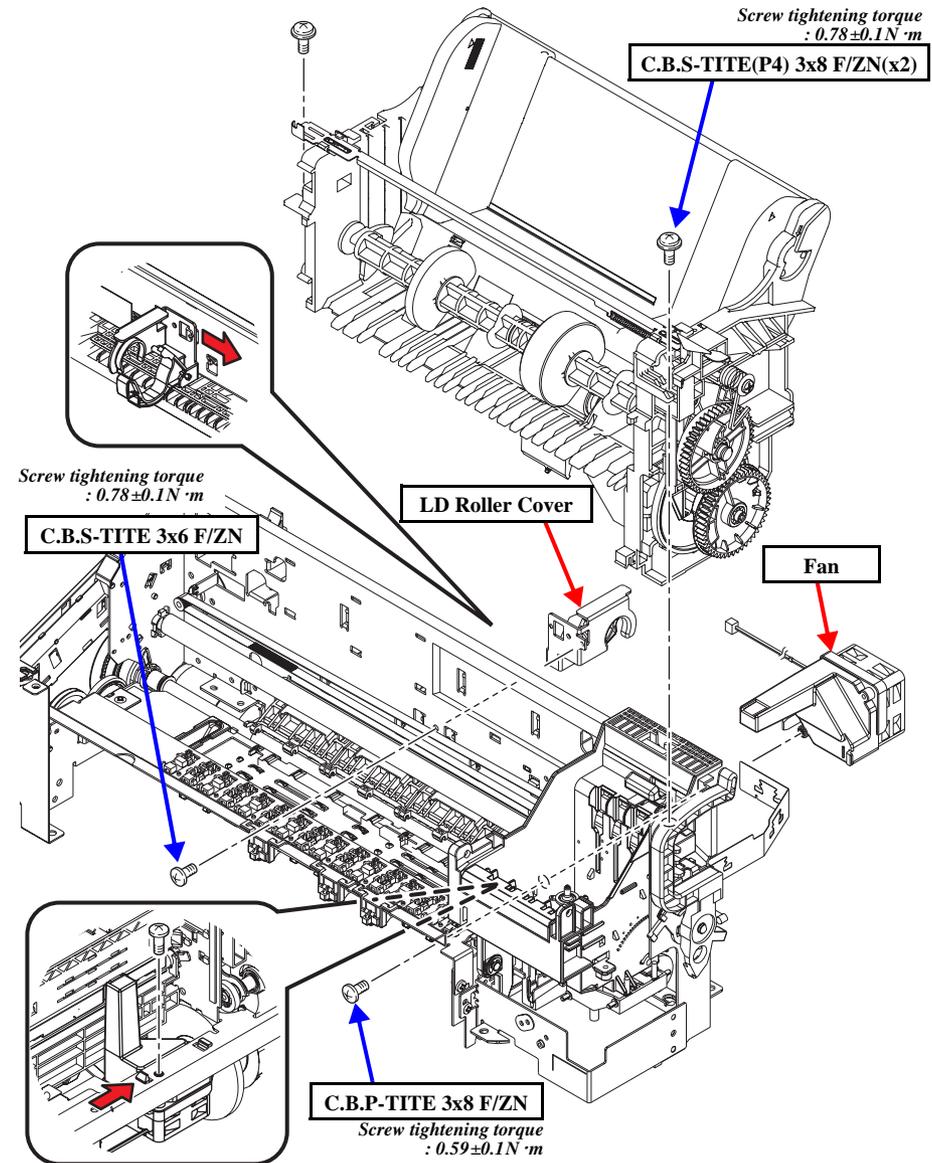


Figure 4-23. ASF Unit Removal

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ASF01.eps

### 4.5.10 ASF Unit Disassembly



Several springs are used for ASF Unit. Accordingly, take care so that they are not missed at the time of disassembly and assembly.

1. Middle Housing Removal. (See p.44)
2. Printer Unit Removal. (See p.45)
3. ASF Unit Removal. (See p.61)
4. Remove screw and washer, then remove torsion spring from ASF Unit. (See Figure 4-24.)
5. Release the hook securing Paper Back Cam, then remove the Paper Back Cam from the ASF Unit.
6. Remove Clutch Gear along with Clutch from ASF Unit.
7. Remove Extension Spring from ASF Unit.
8. Remove Change Lever from ASF Unit.
9. Remove Combination Gear Ratchet from ASF Unit.
10. Release the spring of ASF Trigger Lever from the hook, then remove it.
11. Remove screws securing Right and Left Lever Controls, then remove clamp.
12. Remove ASF Trigger Lever from ASF Unit.
13. Broaden the left side of ASF Frame outward, remove LD Roller from the shaft on the left side.
14. Use a common screwdriver to release the hook on the left side of ASF Unit, then remove Hopper.
15. Rotate Compression Spring counterclockwise, then remove it from ASF Unit.

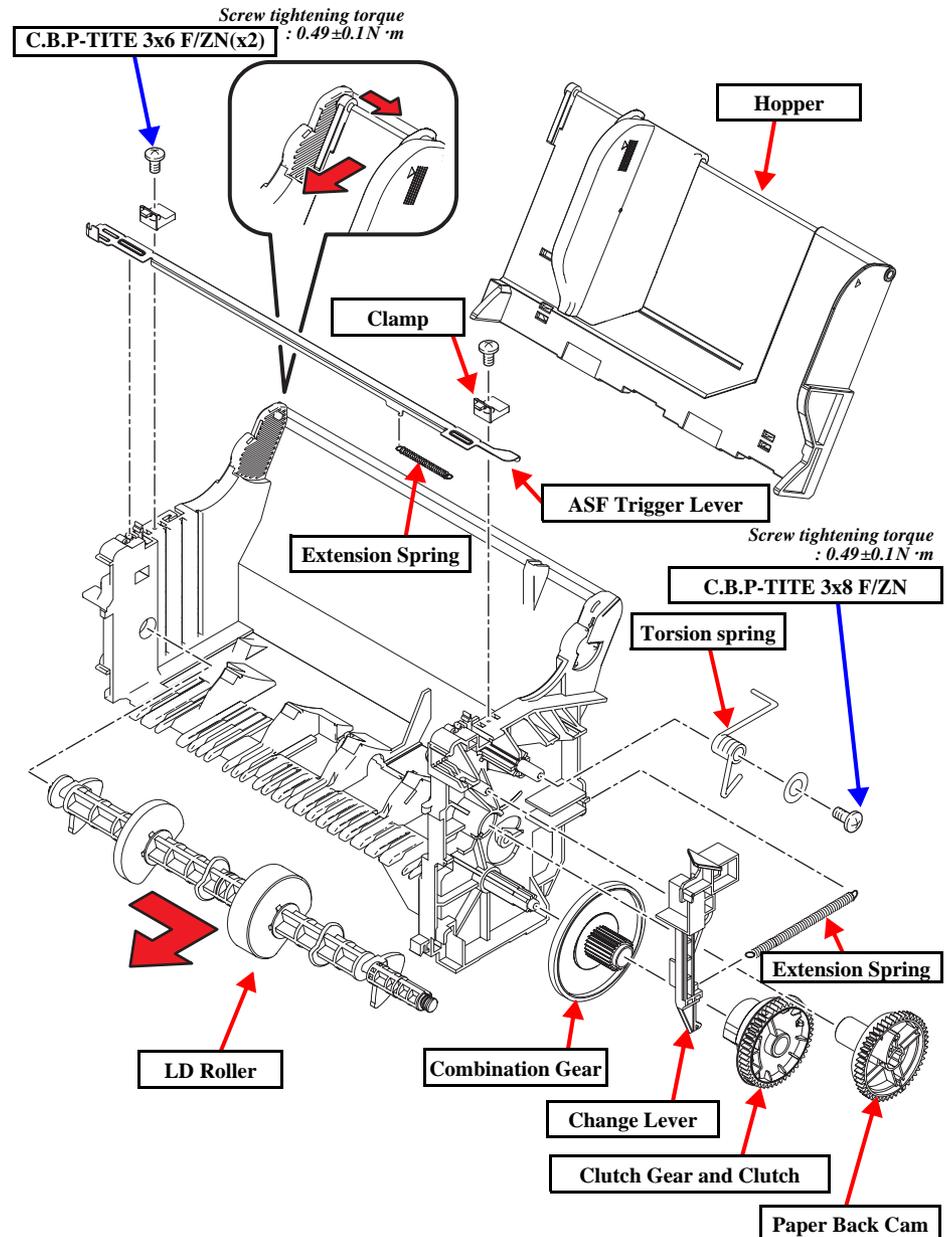


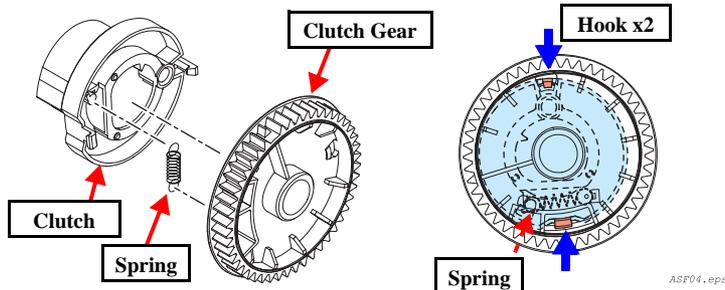
Figure 4-24. ASF Unit Disassembly 1

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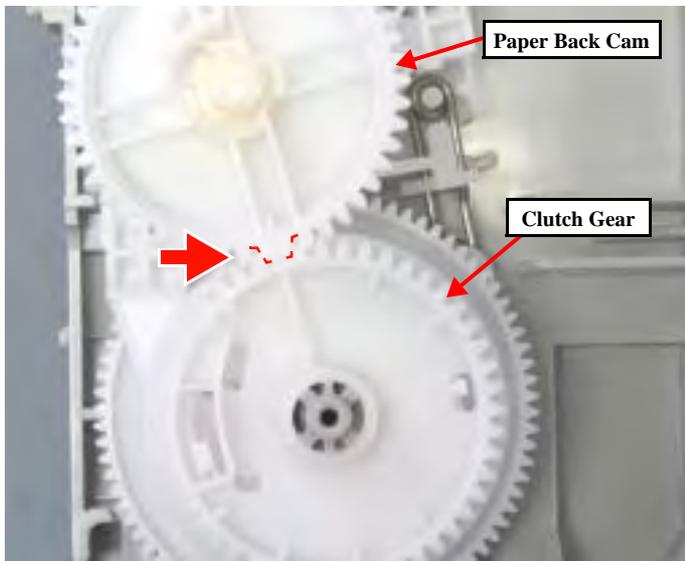
16. On the bottom face of ASF Unit, release hooks and remove Extension Spring.
17. Remove Retard Roller Holder along with the Retard Roller from the right and left bearings of ASF Unit.



- There are lubrication points. Perform the lubrication seeing the following:  
**6.3.3 Printer Lubrication Point (p99)**
- For installation of Clutch Gear and Clutch, see the following:



- Align phase (when inserting Paper Back Cam into LD Roller Shaft at last step)



(Bottom View of ASF Unit)

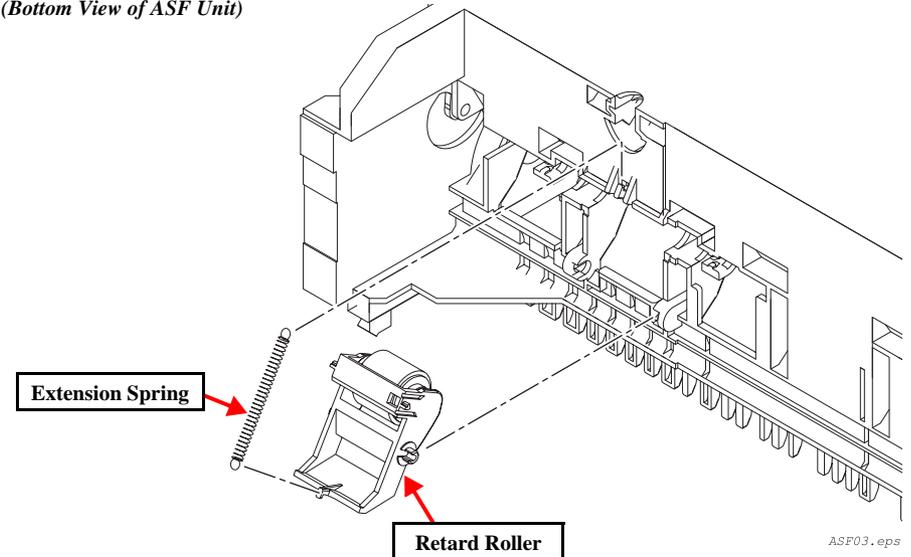


Figure 4-25. ASF Unit Disassembly 2

### 4.5.11 PE Sensor/ PE Lever

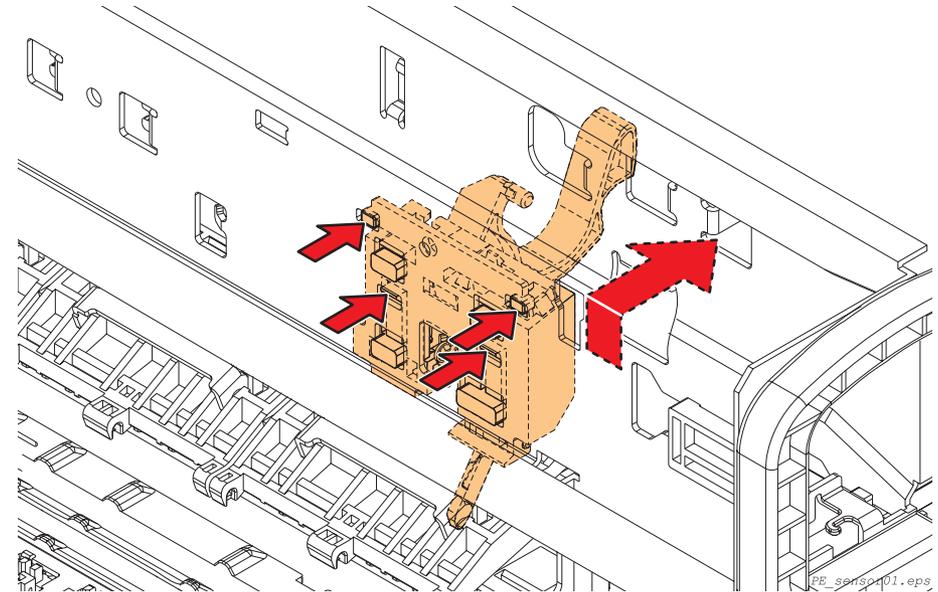
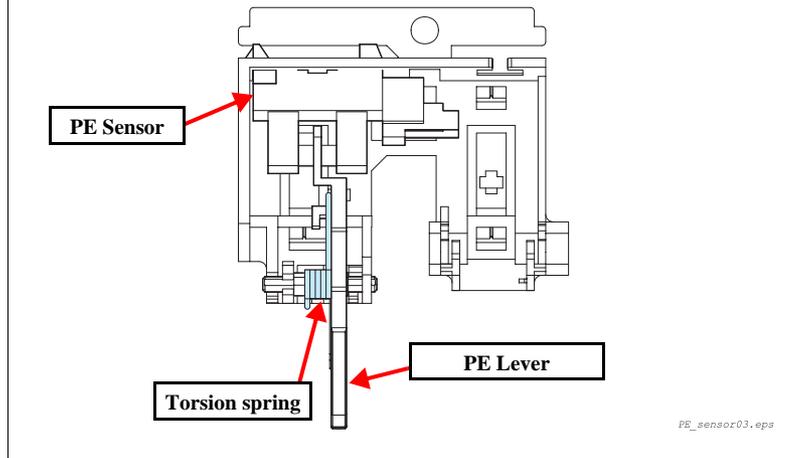
1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. *ASF Unit Removal.* (See p.61)
4. Remove PF Sensor connector.
5. Push upward the right, left and central hooks from the front side and release right, left and upper side hooks, then remove PE Sensor along with the PE Sensor Holder.
6. Release hooks in 3 places, then remove PE Sensor from the PE Sensor Holder.
7. Remove the shaft on the left side of PE Lever from Sensor Holder, then remove the PE Lever.



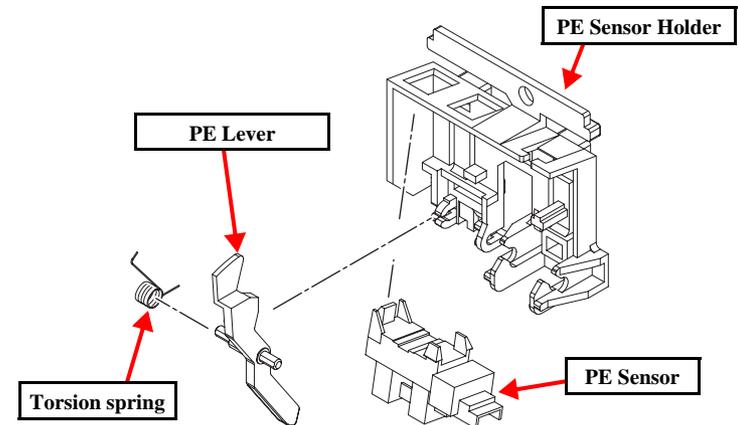
**For removal of only PE Sensor, only PE Sensor may be removed with holder not removed from Printer Frame.**



**When installing PE Lever and torsion spring to PE Sensor Holder, see the figure shown below:**



**Figure 4-26. PE Sensor/ PE Lever Removal 1**



**Figure 4-27. PE Sensor/ PE Lever Removal 2**



## 4.5.12 Paper Eject Frame Unit

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. Remove FCC Holder from Printer Frame. (See Figure 4-21.)
4. Remove right and left screws, then remove Paper Eject Frame Unit from Printer Unit. (See Figure 4-28.)



Right and left frames shall be set in convex parts in 2 places on Printer Frame.

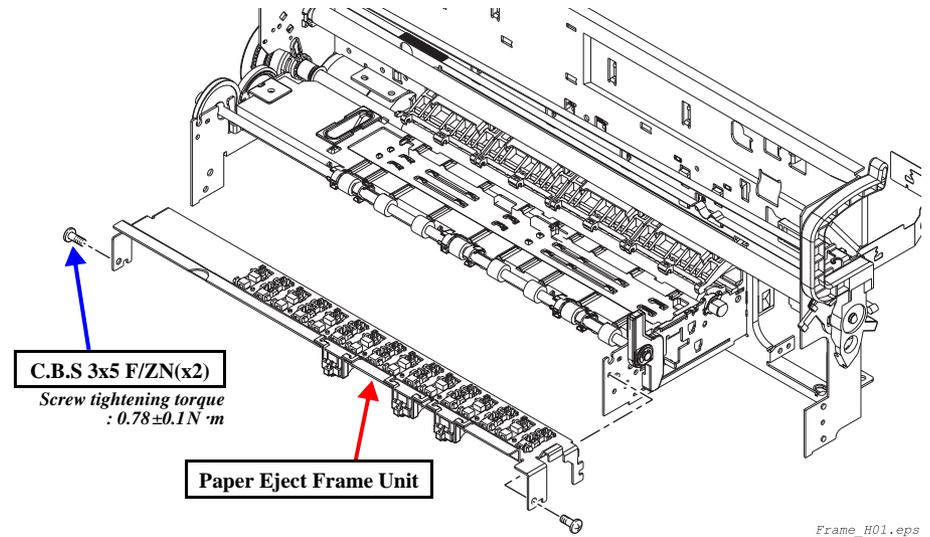
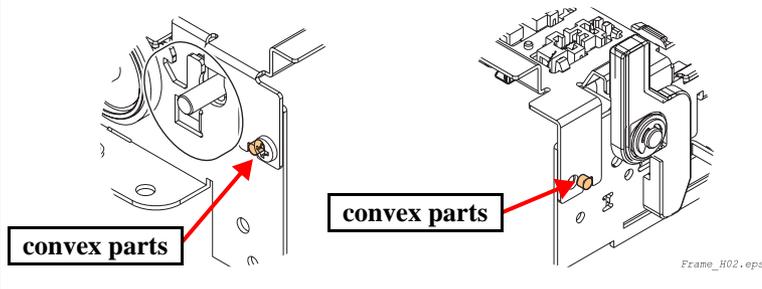


Figure 4-28. Paper Eject Frame Unit Removal

## 4.5.13 Front Paper Guide

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. *Remove Paper Eject Frame Unit.* (See p.65)
4. Remove left screw securing Front Paper Eject. (See Figure 4-29.)
5. Strip sponge on the right side of Front Paper Guide, then remove the screw.
6. Rotate Front Paper Guide toward you, then pull it out from the shaft in parallel the Front Paper Guide.



When assembling Front Paper Guide, perform the lubrication seeing the following:  
[6.3.3 Printer Lubrication Point \(p99\)](#)

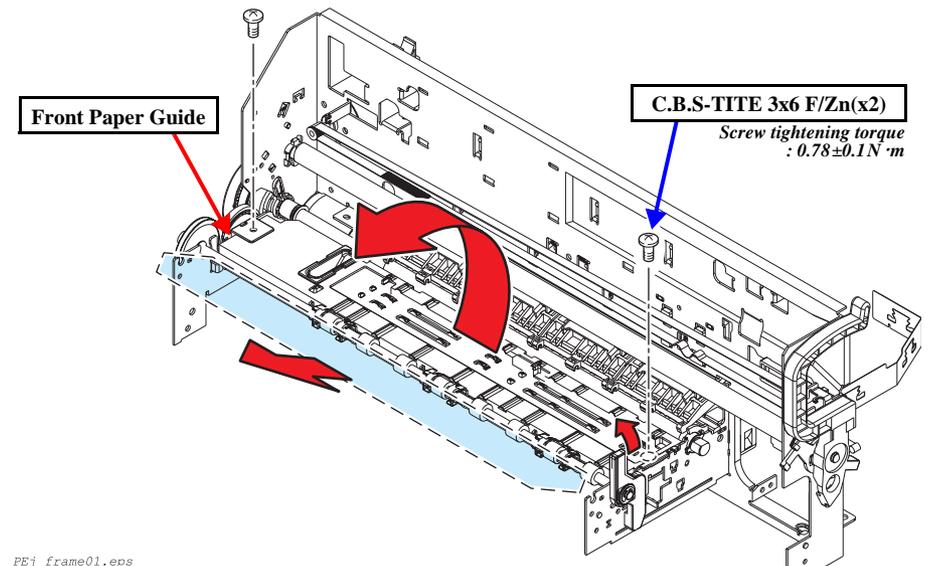


Figure 4-29. Front Paper Guide Removal

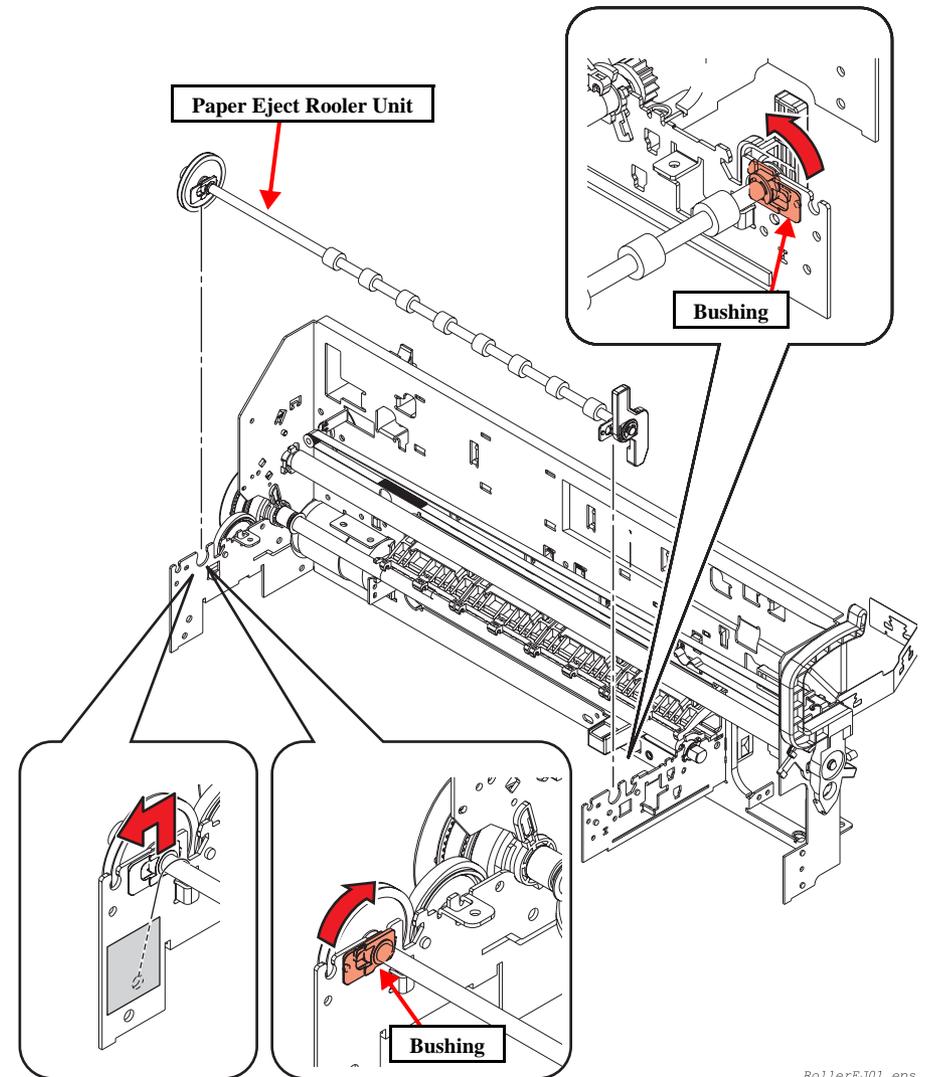
## 4.5.14 Paper Eject Roller Unit

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. *Remove Paper Eject Frame Unit.* (See p.65)
4. *Remove Front Paper Guide.* (See p.65)
5. Remove Grounding Wire on the left side of Printer Frame.
6. Release hooks on right and left Bushings, then rotate the Bushings upward 90 degrees.
7. Remove Paper Eject Roller Unit upward.

### REASSEMBLY



- There are lubrication points. Perform the lubrication seeing the following:  
**6.3.3 Printer Lubrication Point (p99)**



RollerEJ01.eps

Figure 4-30. Paper Eject Roller Unit

### 4.5.15 Upper Paper Guide

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. *ASF Unit Removal.* (See p.61)
4. *Remove PE Sensor/ PE Lever.* (See p.64)
5. Remove 4 screws on Upper Paper Guide from the rear side of the printer.
6. Remove Upper Paper Guide from Printer Frame.



There are lubrication points. Perform the lubrication seeing the following:  
**6.3.3 Printer Lubrication Point (p99)**

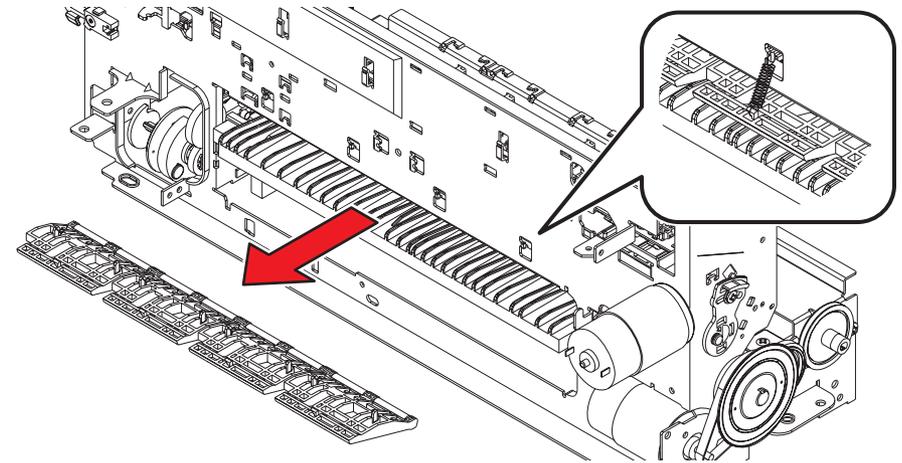


Figure 4-31. Upper Paper Guide Removal

### 4.5.16 Lower Paper Guide

1. *Middle Housing Removal.* (See p.44)
2. *Printer Unit Removal.* (See p.45)
3. *ASF Unit Removal.* (See p.61)
4. *Remove PE Sensor/ PE Lever.* (See p.64)
5. *Remove Power Unit.* (See p.59)
6. *Remove Upper Paper Guide.* (See p.67)
7. On the rear of the printer, release the hook (pump side) of Lower Paper Guide, then slide the Lower Paper Guide sideways.
8. Release the hook of Lower Paper Guide from PF Roller Shaft (pump side), and release the hook of PF Motor side, then remove Lower Paper Guide from PF Roller Shaft.



There are lubrication points. Perform the lubrication seeing the following:  
**6.3.3 Printer Lubrication Point (p99)**

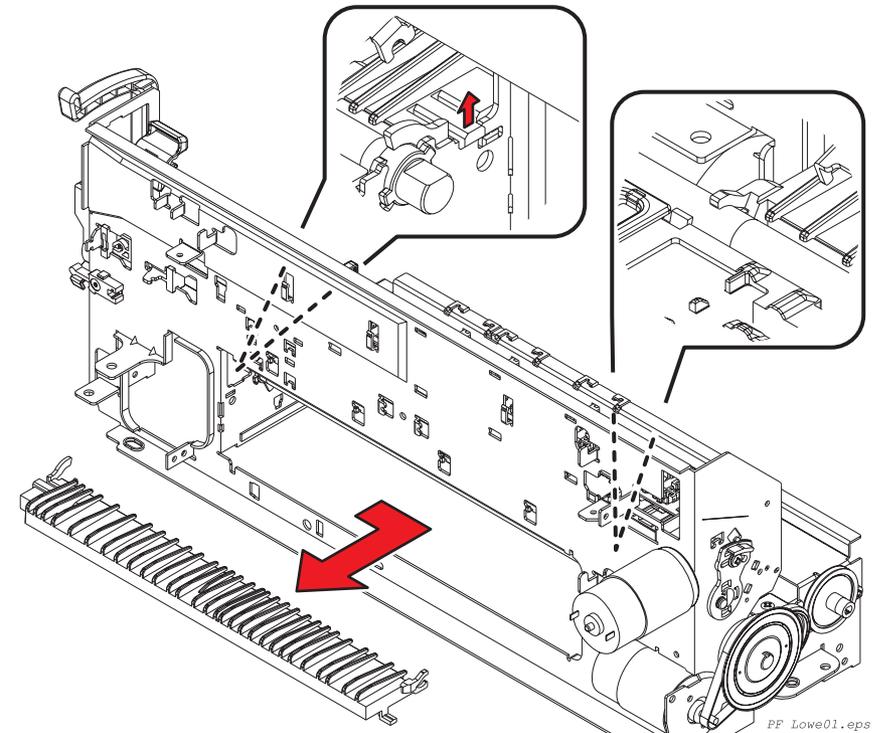


Figure 4-32. Lower Paper Guide Removal

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PF Lowe01.eps

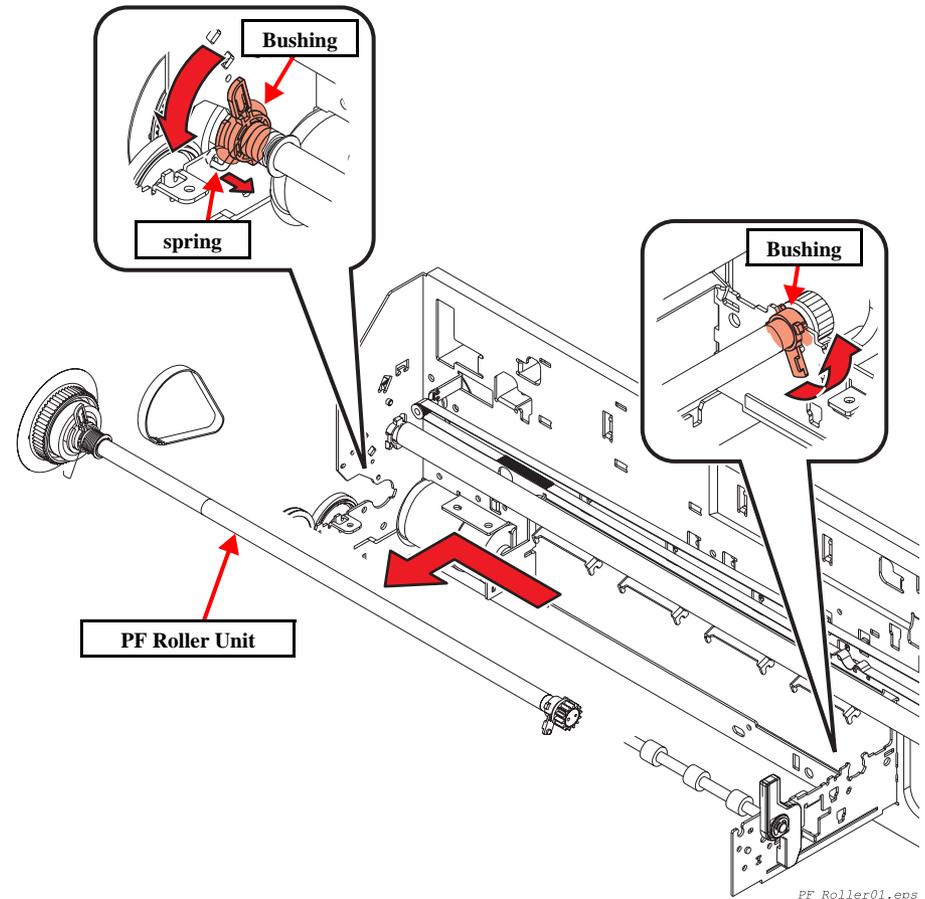
### 4.5.17 PF Roller Unit

1. *Middle Housing Removal. (See p.44)*
2. *Printer Unit Removal. (See p.45)*
3. *Remove PF Encoder. (See p.60)*
4. *Remove Paper Eject Frame Unit. (See p.65)*
5. *Remove Front Paper Guide. (See p.65)*
6. *Remove Paper Eject Rooler Unit. (See p.66)*
7. *ASF Unit Removal. (See p.61)*
8. *Remove PE Sensor/ PE Lever. (See p.64)*
9. *Remove Power Unit. (See p.59)*
10. *Remove Upper Paper Guide. (See p.67)*
11. *Remove Lower Paper Guide. (See p.67)*
12. Loosen upper and lower screws securing PF Motor, then remove the belt from PF Motor. (See Figure 4-22.)
13. On the left side of the Printer Frame, release the spring from Printer Frame.
14. Release hooks of right and left Bushings, and slide the Bushings to the left side to remove them from Printer Frame, then remove PF Roller Unit.

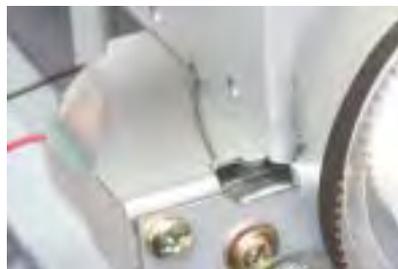


When installing PF Motor, perform the adjustment seeing the following:

- [List of Adjustment Items by Unit/Part \(p.76\)](#)



- After installing PF Roller Unit, install the Spring as shown in the right figure.



- There are lubrication points. Perform the lubrication seeing the following:  
[6.3.3 Printer Lubrication Point \(p99\)](#)

Figure 4-33. PF Roller Unit Removal



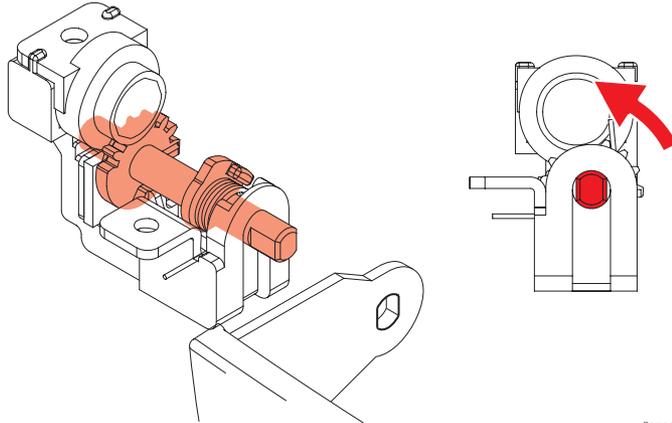
## 4.6 Other Parts Disassembly and Assembly

### 4.6.1 Damper ASSY

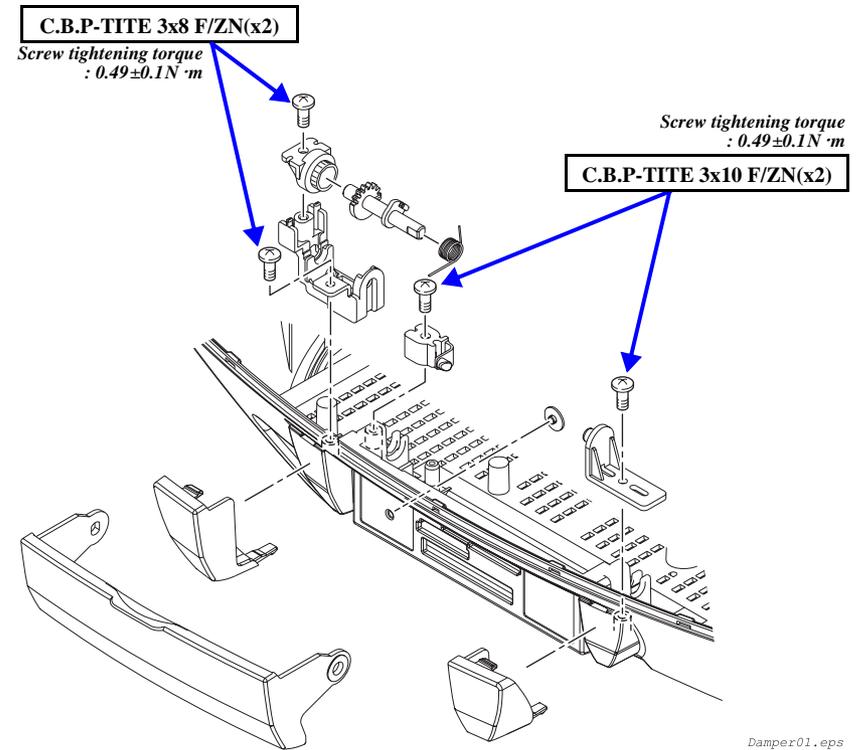
1. *Panel Unit Removal.* (See p.42)
2. (If necessary) *Remove Main Board (C545 MAIN).* (See p.71)
3. Remove the screw securing Damper ASSY, then remove Damper ASSY from Middle Housing.



Damper ASSY shall be installed with memory card closed and in a state shown in the figure shown below.



Damper02.eps



Damper01.eps

Figure 4-34. Damper ASSY Removal

## 4.6.2 Stacker

1. *Panel Unit Removal. (See p.42)*
2. *Scanner Unit Removal. (See p.43)*
3. *Middle Housing Removal. (See p.44)*
4. While pushing 2 convex parts on upper Stacker and sliding Stacker toward you, remove it.



- There are lubrication points. Perform the lubrication seeing the following:  
[6.3.3 Printer Lubrication Point \(p99\)](#)

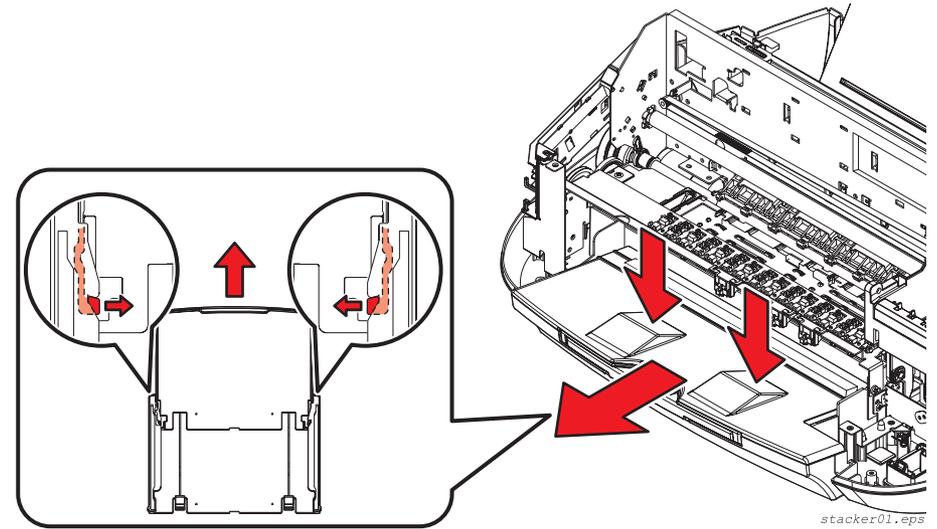


Figure 4-35. Stacker Removal

### 4.6.3 Main Board (C545 MAIN)



If the contents of EEPROM can be read from Main Board to be replaced, only adjusting values can be backed up and they can be written to the replaced Main Board, which reduces repair time. (For details, see “5.3.3.4 EEPROM data copy (p91)”.)

1. Panel Unit Removal. (See p.42)
2. Remove all of connectors and FCCs connected to Main Board.
3. Remove 3 screws, then remove Main Board Unit from CX6300/CX6400/CX6500/CX6600 main body.
4. Remove 5 screws, then remove Shield from Main Board Unit.
5. Remove 9 screws, then separate Main Board and Main Board Base from each other.

CN No.	Color	Pins number	Connected to
CN3	White	11	Power Unit
CN5	(FFC)	12	CIS Unit (CCD+LED)
CN6	(FFC)	32	Panel Board
CN8	White	3	PE Sensor
CN9	White	2	CR Motor
CN10	Black	2	PF Motor
CN11	(FFC)	7	HP Sensor + Drive Unit (Scanner Board)
CN12	(FFC)	5	PF Encoder
CN13	(FFC)	26	Printhead (I/C Board + CR Board)
CN14	Yellow	2	PG Sensor
CN15	Red	2	Mist Fan
CN16	(FFC)	26	Printhead



When having replaced C545 Main Board, perform the following part replacement and adjustment:

- List of Adjustment Items by Unit/Part (p.76)

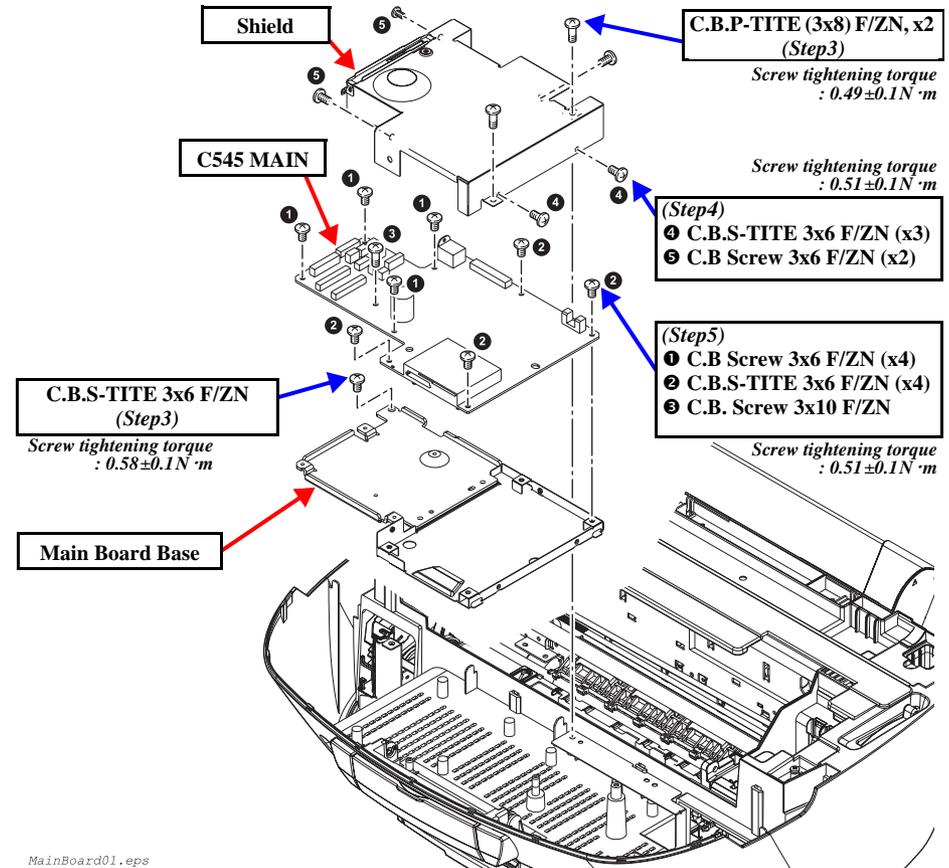


Figure 4-36. Main Board Removal

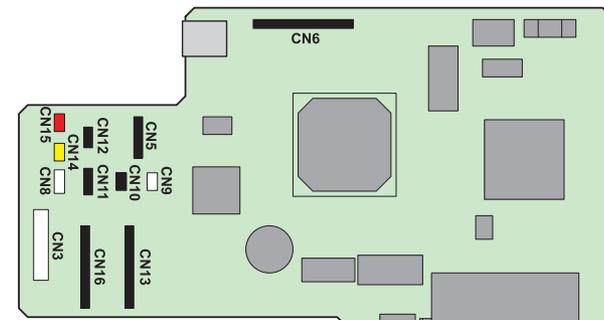


Figure 4-37. Connector Layout

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## 4.6.4 Waste Ink Pads

1. *Panel Unit Removal. (See p.42)*
2. *Scanner Unit Removal. (See p.43)*
3. *Middle Housing Removal. (See p.44)*
4. *Printer Unit Removal. (See p.45)*
5. Replace Waste Ink Pads. (See Figure 4-38.)

### REASSEMBLY



Pass the Waste Ink Tube through the Waste Ink Pad H, then install it along the Lower Housing groove as shown in the figure shown below. If the Waste Ink Tube is set in a position other than the specified one, ink may be leaked.



### ADJUSTMENT REQUIRED



When having replaced Waste Ink Pads, perform the adjustment seeing the following:

- [List of Adjustment Items by Unit/Part \(p.76\)](#)

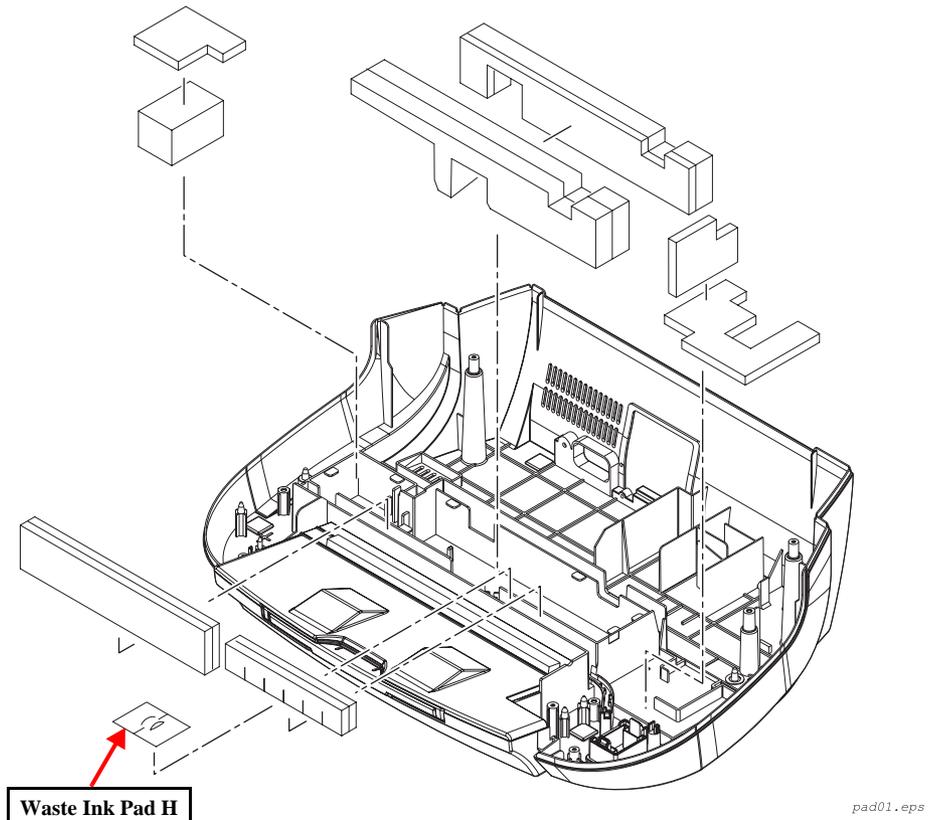


Figure 4-38. Waste Ink Pads Removal

pad01.eps

CHAPTER

5

# ADJUSTMENT

## 5.1 Overview

This section describes all adjustment procedures for Stylus CX6300/CX6400/CX6500/CX6600.

### 5.1.1 Adjustment Items

Described below are adjustment items of CX6300/CX6400/CX6500/CX6600.

**Table 5-1. Adjustment Items (Mechanical Adjustments)**

Category	Items	Conditions	Purpose
Mechanical Part Adjustment (p.77)	PG Adjustment (p.77)	1. Performed after mechanism replacement. 2. Performed after carriage or carriage guide shaft removal/replacement.	Ensures correct distance between head surface and paper guide and adjusts parallelism at 0 character side and 80 character side to stabilize print quality.
	PF Belt Tension Adjustment (p.79)	Performed after PF motor removal/replacement.	<ul style="list-style-type: none"> <li>To reduce the load on the PF Motor.</li> <li>To ensure precision of paper feeding.</li> </ul>

**Table 5-2. Adjustment Items (Program)**

Category	Items	Conditions	Purpose
Adjustment (p.81)	Market Setting (p.81)	Performed after circuit board replacement regardless of result from Backup try described above.	This operation allows the firmware to recognize differences between Japanese made parts and foreign made parts and optimizes the ID check performed between the main circuit board and the ink cartridge.
	USB ID Input (p.82)	Performed after main board replacement.	A unique ID is created by inputting the printer's serial number into the USB ID. This prevents conflicts with ID of other connected USB devices.
	Head ID Input (p.83)	Performed after printhead and main board replacement.	If this is not performed, the printing will become unstable and result in poor operation such as continuous generation of Head Hot Error (Fatal Error indicator).
	Head Angular Adjustment (p.83)	Performed after printhead removal/replacement.	If this slips, vertical lines will zigzag and letters will slope like italics.
	Bi-D Adjustment (p.84)	Performed after printhead, main board and CR motor replacement.	When bi-directional printing is being performed, the targeted ink impact position is adjusted for alignment regardless of the direction of CR motion. (User adjustment possible with Utility on the Driver.)
	PF Adjustment (p.85)	Performed after printhead, main board and PF motor replacement.	Sliding will occur if PF motor revolution speed becomes high during high speed printing. Correcting this at PF motor control reduction table eliminates sliding even during high speed printing, preventing appearance of white lines. (User adjustment possible with Utility on Driver.)
	PW Sensor Adjustment (p.86)	Performed after Carriage Unit removal/replacement.	The program compensates for an error in the mounting position of the Carriage Unit.



Table 5-2. Adjustment Items (Program) (continued)

Category	Items	Conditions	Purpose
Adjustment (p.81)	First Dot Adjustment (p.87)	Performed after main board replacement or CR/CR Guide Shaft removal (or mechanical disassembly in those areas).	Confirms and adjusts suitable position for first printing at top of paper.
	CR Motor Drive Dispersion Sequence (p.88)	<ol style="list-style-type: none"> <li>CR motor heat control correction max value registered in EEPROM after CR motor, PS board and Main board replacement.*</li> <li>Suitable heat control correction value for starting CR motor drive dispersion sequence registered after CR guide shaft removal/replacement.</li> </ol>	Calculated by converting the mechanism load from current flowing to CR motor. By precisely calculating CR motor heat timing based on this data and registering it in EEPROM, safeguard operation timing is optimized for continuous operation of CR. To prevent motor coil burn damage, adjustment is necessary after corresponding part replacement.
Check Pattern (p.92)	A4 plain paper print / A4 photo quality paper print (p.92)	<ol style="list-style-type: none"> <li>Used for first operation check with recycled parts.</li> <li>Used to switch to adjustment for checking correct printing after ink charging following printhead replacement.</li> <li>Used for print check after completed repairs.</li> </ol>	This function checks printing in each print mode and confirms absence of printing problems. Check points for each print pattern are explained in the adjustment program.
	Nozzle check pattern print (p.92)	Checking for dot missing.	Print a pattern, and check for stopped up nozzles.
Maintenance (p.89)	Head cleaning (p.89)	Dot missing generated - 1	<p>Always starts strongest cleaning cycle from among cleaning types supported by Stylus CX6300/CX6400/CX6500/CX6600</p> <ol style="list-style-type: none"> <li>Used to perform cleaning when dot missing occurs with A4 normal paper printing during adjustment or after ink charge.</li> <li>Use during recovery of main functions when recycled parts generate simple instance of dot missing.</li> </ol>
	Ink charge (p.89)	Dot missing generated - 2	Used for recovery of ink absorption at same level of initial ink charge for dot missing not recoverable by head cleaning described above.
	Waste ink pad counter (p.90)	Clears counter value to 0 when a maintenance error is generated or replacing the waste fluid pad.	Same as left.
	EEPROM data copy (p.91)	Try in stages before changing the circuit board.	If the results can be read out, easy repairs may be possible without performing many adjustments.
Appendix (p.93)	Save all EEPROM data (p.93)	Backs up all the EEPROM data.	
	Uploading Firmware (p.94)	Firmware is overwritten with the new firmware.	Replace the firmware stored on the FLASH ROM on the CX6300/CX6400 Main Board with the new firmware.

Note "\*": Not required when only the Main Board has been replaced with a new one and EEPROM backup has successfully been achieved. For details, see "5.3.3.4 EEPROM data copy" (p.91).



### 5.1.2 List of Adjustment Items by Unit/Part

Table 5-3. List of Adjustment Items by Unit/Part

Unit/Part (Reference Page for Disassembly/Assembly)	Adjustment Items (Reference Page for Adjustment Procedure)												Others
	PG Adjustment (p.77)	PF Belt Tension Adjustment (p.79)	Market Setting (p.81)	Head ID Input (p.83)	Head Angular Adjustment (p.83)	Bi-D Adjustment (p.84)	PF Adjustment (p.85)	PW Sensor Adjustment (p.86)	First Dot Adjustment (p.87)	CR Motor Drive Dispersion Sequence (p.88)	USB ID Input (p.82)	Uploading Firmware (p.94)	
Main Board (C545 MAIN) replacement (p.71)*1	-	-	2	5	6	9	10	7	8	11	12	4	1. Waste Ink Pads replacement (p.72) 3. Waste ink pad counter (p.90) clear
Printhead removal (p.53)	-	-	-	-	2	3	-	-	-	-	-	-	1. Head cleaning (p.89)
Printhead replacement (p.53)	-	-	-	2	3	5	-	-	4	-	-	-	1. Ink charge (p.89)
Printer Unit removal (p.45)	1	-	-	3	4	7	8	5	6	9	-	-	2. Ink charge (p.89)
Waste Ink Pads replacement (p.72)	-	-	-	-	-	-	-	-	-	-	-	-	1. Waste ink pad counter (p.90) clear
Power Unit replacement (p.59)	-	-	-	-	-	-	-	-	-	1	-	-	
Carriage Unit removal/ replacement (p.56)	1	-	-	-	2	6	5	3	4	7	-	-	
CR Motor removal (p.55)	-	-	-	-	-	1	-	-	-	2	-	-	
PF Motor removal/ replacement (p.60)	-	1	-	-	-	4	2	-	3	-	-	-	

Note "1": Confirm that the contents of EEPROM can be read before Main Board replacement.  
 If back-up operation can be done, the following items need not be adjusted:  
 For details, see "5.3.3.4 EEPROM data copy" (p.91).

- Head ID input
- Head Angular Adjustment
- Bi-D adjustment
- PF adjustment
- PW Sensor adjustment
- USB ID input
- 1<sup>st</sup> dot position adjustment
- CR motor drive dispersion



Upon completion of a series of adjustments, perform the following check pattern printing and check the adjustment values of the printer again.

- A4 plain paper print (p.92)
- A4 photo quality paper print (p.92)



## 5.2 Mechanical Part Adjustment

This section describes the mechanical adjustments required when specified units/parts have been reinstalled or replaced.

### 5.2.1 PG Adjustment

Described below is the platen gap (PG) adjustment.

Purpose

Once the Adjustment Bushes have been removed, for removing the Carriage Unit, for instance, make this adjustment to correct the deviation of the platen gap.

Things to be used

- Thickness gauge (1.45-1.59 mm)
- Phillips screwdriver

Procedure



- Use a thickness gauge that is free from soiling or deformation.
- Take care that the Print Head is not soiled or scratched.



Make this adjustment before installing the FFC Holder on the left side of the printer.  
Refer to “4.5.4 Carriage Unit (p.56)”

1. Loosen the screws securing the right and left Adjustment Bushes.
2. Push down the PG Lever rearward (toward the UP side). (See Figure 5-2)
3. Turn the Lock Lever toward the front for unlocking.
4. Move the Carriage Unit to the left side of the printer.

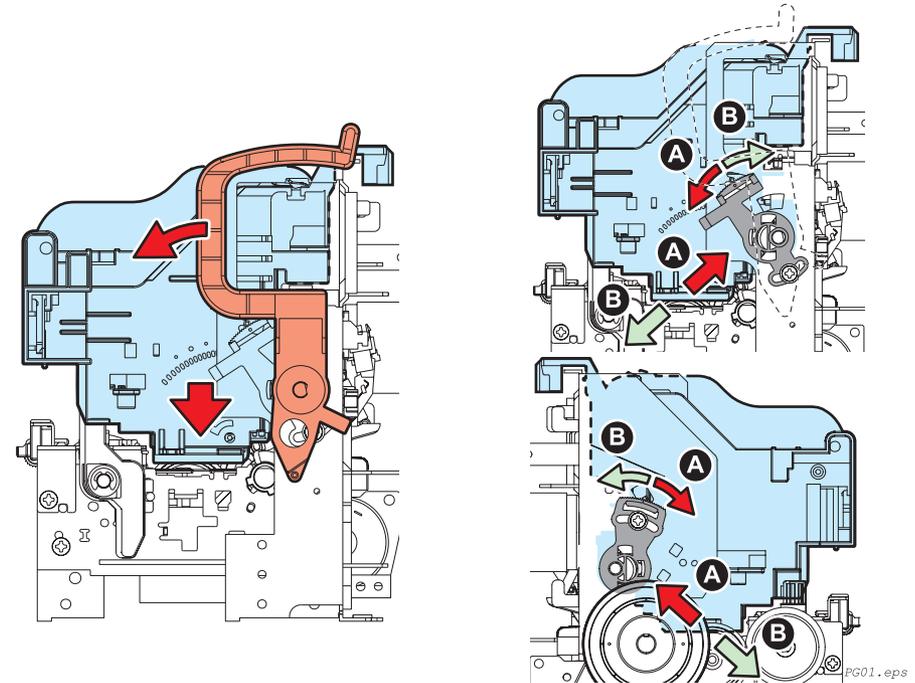


Figure 5-1. PG Adjustment 1

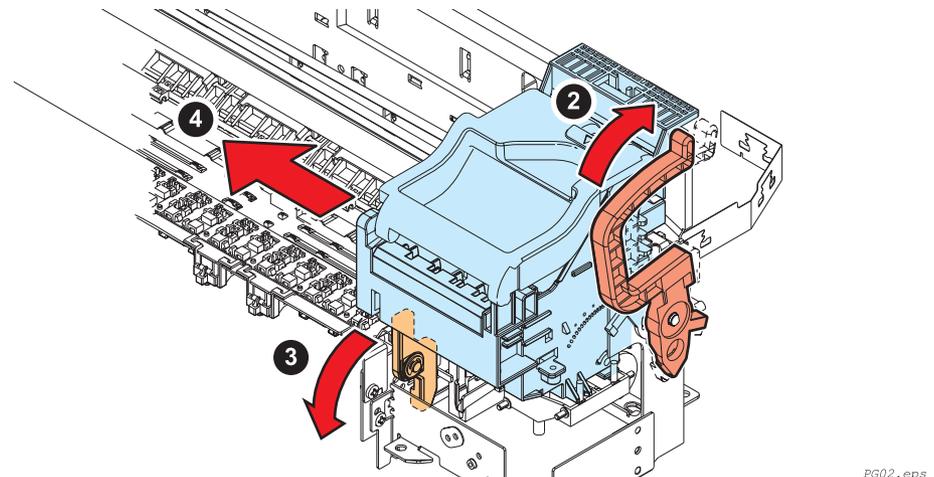


Figure 5-2. PG Adjustment 2



5. Place the gauge on the right side of Upper Paper Guide. (See Figure 5-3)
6. Move the Carriage Unit over the gauge.
7. Pull the PG Lever toward you to lower the Carriage Unit.
8. Turn the Adjustment Bush to a position where the Print Head comes in contact with the gauge, and then turn the Adjustment Bush toward the rear by one gear tooth.
9. Push down the PG Lever rearward. (Toward the UP side)
10. Place the gauge on the left side of the Upper Paper Guide. (See Figure 5-4)
11. Move the Carriage Unit over the gauge.
12. Pull the PG Lever toward you to lower the Carriage Unit.
13. Turn the Adjustment Bush to a position where the Print Head comes in contact with the gauge, and then turn the Adjustment Bush toward the rear by one gear tooth.
14. Push down the PG Lever toward the rear, and make the PG adjustment again at the right end.
15. Tighten up the screws securing the right and left Adjustment Bushes.

**NOTE:** Screw tightening torque:  $0.59 \pm 0.1 \text{ N}\cdot\text{m}$

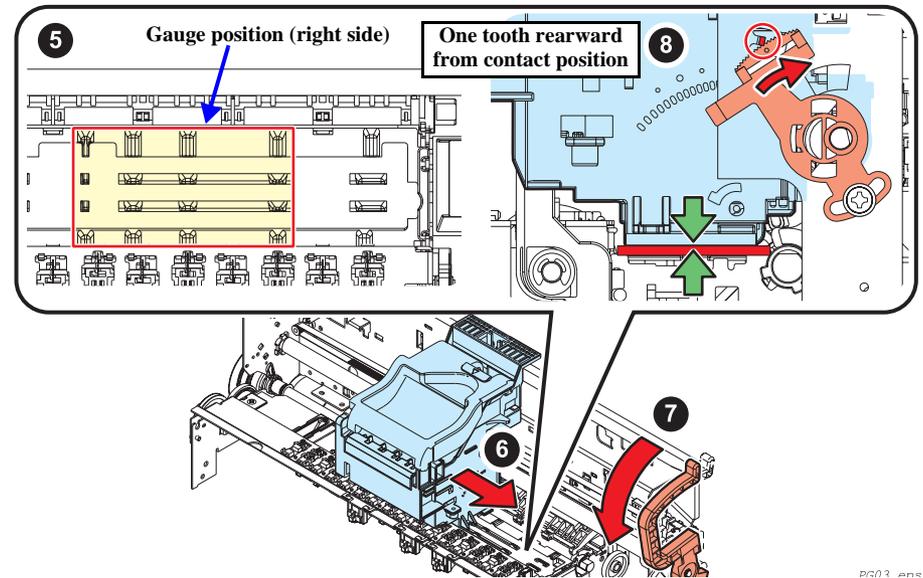


Figure 5-3. PG Adjustment (Right Side)

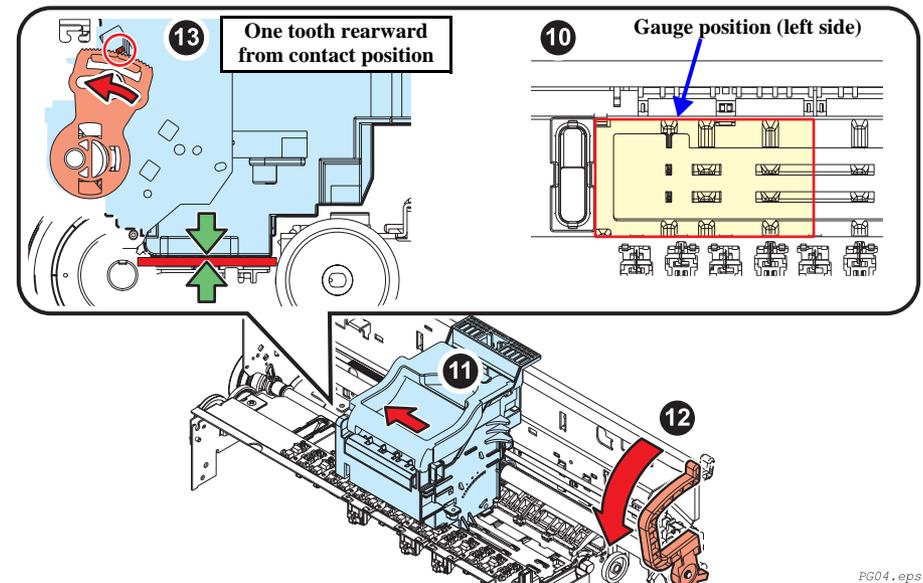


Figure 5-4. PG Adjustment (Left Side)

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## 5.2.2 PF Belt Tension Adjustment

This section explains belt tension adjustment using the special acoustic measurement instrument during adjustment procedures.

### □ Purpose

This adjustment is necessary for the reasons explained below.

- When the tension is not correct, the tension between the PF Motor Pinion and the Timing Belt decreases and can result in occurrence of free spinning of the parts (a fatal error).
- If tension is too tight, the mechanism load increases (PF Motor driving load) and in the worst case can result in disruption due to overheating of the coil in the PF Motor. (During tasks such as heavy duty printing.)
- Accuracy of paper feeding cannot be ensured when tension is not correct and can result in jamming.

### □ Things to be used

- Tension meter
- Tweezers
- Phillips screwdriver

### □ Adjustment Method

Adjustment can be accomplished by following the steps in the sequential program, but the steps are also shown below.

1. Secure the mechanism of the PF Motor and fasten the Timing Belt between the PF Roller Unit and the PF Motor Pinion.
2. Press the POWER button. (No. 0 or No. 1 will appear in the LCD.)
3. Select the channel for making further settings by pressing the SELECT button for a number from No. 0 ~ No. 9. (Not selecting a number continues default values without a problem.)
4. Press the WEIGHT button. The default value will appear, but entering a number with the keyboard ten-key pad will display a value such as “1.3g/m”.
5. Press the WIDTH button. The default value will appear, but entering a number with the keyboard ten-key pad will display a value such as “5.0mm”.
6. Press the SPAN button. The default value will appear, but entering a number with the keyboard ten-key pad will display a value such as “35mm”.
7. The microphone surface will approach the center of belt tension as near as possible. (See Figure 5-5)

**NOTE:** Use the tip of a pair of tweezers for the timing belt plucking operation of the above steps, but be careful that the plucked belt does not make contact with the microphone.

8. Press the MEASURE button. (“----” will appear in the LCD.)
9. Grasp the Timing Belt with the tip of a pair of tweezers and pull the belt downwards to pluck it. (See Figure 5-5) The “----” straight line in the LCD will change as though impacting a wave, a high-pitched beep will notify of the measurement results and an “N” will appear in the LCD. Regardless of the force used to pluck the Timing Belt, the instrument is able to measure by accurately picking up the acoustic tone, and the results are displayed in “N” units (Newton).
10. Repeat Steps 8 ~ 9, delicately shifting the variable part of the PF Motor installation position to adjust the tension until it comes within the range of the standard value.

**NOTE:** Standard Value is  $11.5 \pm 2.5N$  (9~14N)

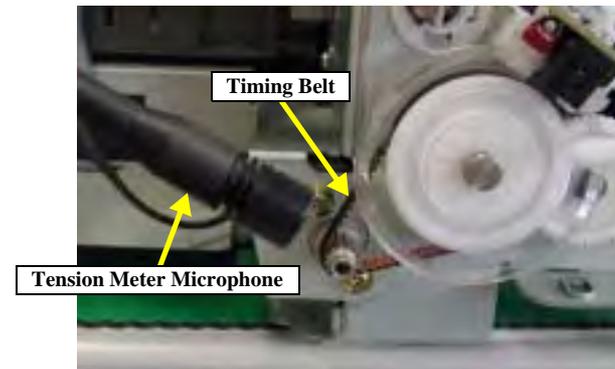


Figure 5-5. PF Belt Tension Adjustment

CHECK  
POINT



- If plucking the belt has no effect and the LCD does not change at all, try plucking the belt again after waiting 2 ~ 3 seconds.
- Ensure a quiet environment when taking the measurement so that the microphone will not be prevented from accurately measuring due to picking up surrounding noise.
- If measurement results widely differ, there is a high probability that some of the measurements are not being picked up accurately, so pluck the belt again with tweezers and record the value for the approximate results of 2 measurements. Displayed values are highly reliable, with an error factor of 1/100 ~ 5/100.

## 5.3 Adjustments by Adjustment Program

### 5.3.1 Overview

This machinery is adjusted by using specialized adjust program. Adjusted revision figure is written into EEPROM of Main Board.

- Operating environment
  - OS: Windows98/Me/2000/XP
  - Hardware: PC equipped with USB 1.1/2.0 I/F
- Program constitution
  - SCX6463\_Ver10.exe (program main file)
  - D4Comm.dll
  - OsSwitch.dll
  - PrnDrv98.dll
  - PrnDrvXP.dll

#### 5.3.1.1 Installing the Adjustment Program

Copy the five files listed above into any desired folder on the PC.



- Before installing this program, make certain that a USB driver has been installed on the PC properly.
- Make sure that the five files are contained in the same folder.

#### 5.3.1.2 Starting the Adjustment Program

1. The following start screen is displayed when the adjustment program has been started. Then select a model name, destination and port.



Figure 5-6. Adjustment Program Start Screen

2. Click the [OK] button.



While CX6300/CX6400/CX6500/CX6600 is warming up (Power LED is flashing), you cannot run the program (a communication error occurs). Run the program after making certain that the Power LED of the printer is lit.

3. Select the item to be executed by clicking the tab.

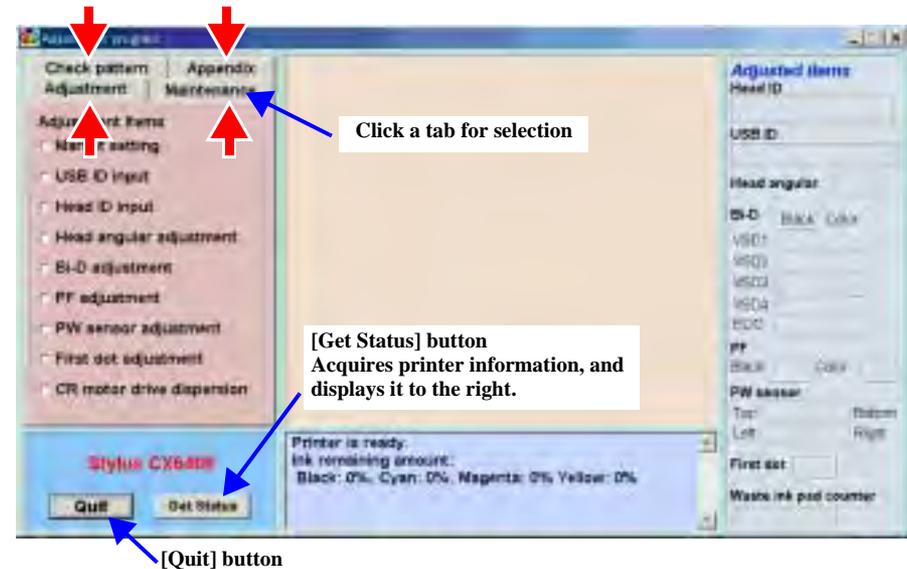


Figure 5-7. Adjustment Program Screen

- Quitting the program
 

Clicking the [Quit] button displays the window shown below.

  - [Quit] button: Finishes the adjustment and closes the program.
  - [Continue] button: Returns the program to the start screen.

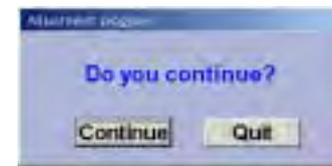


Figure 5-8. Quit Screen

### 5.3.2 Adjustment

This section describes the items of the adjustment tabs of the adjustment program.

#### 5.3.2.1 Market Setting (EEPROM initialization)

When the Main Board of this machinery has been replaced with a new one, enter the initial setting values in EEPROM with this Adjustment Item.

- [OK] button: In the bottom center area on the screen, a message appears to indicate that the initial setting values of CX6300/CX6400/CX6500/CX6600 have been written.
- [Check] button: You can check the current destination setting of the printer.



Be sure to make this setting irrespective of the result of “EEPROM data copy” (p.91).

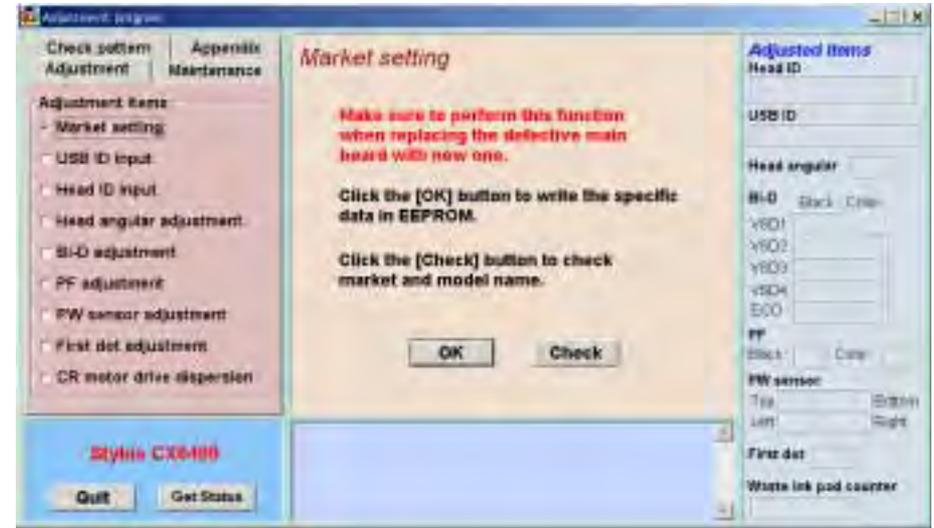


Figure 5-9. Destination Setting Screen



### 5.3.2.2 USB ID Input

A specific USB ID is stored in EEPROM on the Main Board. Therefore, it is required to input a USB ID when you have replaced the Main Board with a new one.

The USB ID, which is a specific 18-digit alphanumeric character string, has been recorded at a certain address on EEPROM. A USB ID is assigned at the factory as follows.

- Manufacture process line No. (3 digits)
- PC No. (2 digits)
- Date (12 digits) -The built-in time data of the PC is used.
- "0" (1 digit)

In repair, the 10-digit product serial number is used as the 10 digits of the new USB ID, and the new USB ID is completed with an 8-digit character string which is produced by Adjustment Program and automatically added to the serial number. Then input the new USB ID in EEPROM on the new Main Board.

Read 10 digits serial number from manufacture plate on the back of Stylus CX6300/ CX6400/CX6500/CX6600 and input it and click the [OK] button. New USB ID is input to EEPROM.

- [Input] button: Click the [Input] button after inputting the USB ID, and the USB ID will be written in EEPROM.
- [Read] button: You can check the current USB ID.



**This operation is not needed when the setting values in EEPROM on the old Main Board have been written in EEPROM on the new Main Board normally.**

**Refer to "5.3.3.4 EEPROM data copy (p.91)"**

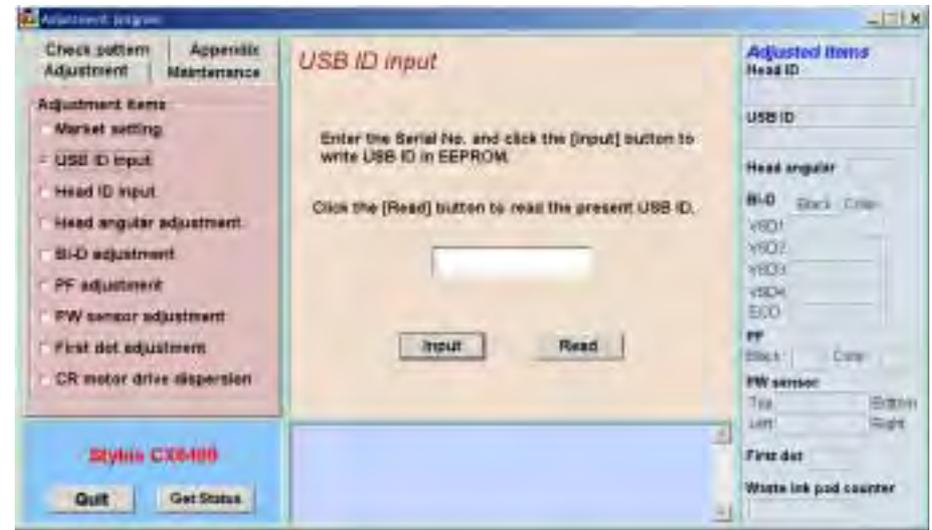


Figure 5-10. USB ID Input Screen

### 5.3.2.3 Head ID Input

With this function, write the head ID in EEPROM, and check the current setting value. This adjustment compensates for the uneven discharge of ink to keep the printing quality at a constant level. An irregularity occurs in the printing density unless a proper ID is input.

- Functions of buttons
  - **[Input]:** Click the [Input] button after inputting the Head ID, and the Head ID will be written in EEPROM.
  - **[Read]:** You can check the current Head ID.



**As the Head ID, use the 15-digit character string found on the Print Head.**  
**Example: F4B372530204B40**



Figure 5-11. Head ID Input Screen

### 5.3.2.4 Head Angular Adjustment

Perform pattern printing, determine an adjustment value so that the program compensates for an error in the mounting position of the head relative to the print surface, and write the adjustment value in EEPROM.

- Media to be used: Photo Quality Ink Jet Paper (A4 Size)
- Functions of buttons
  - **[Print]:** Prints the head angular adjustment pattern.
  - **[Input]:** Click the [Input] button after inputting the adjustment value, and the adjustment value will be written in EEPROM.
  - **[Read]:** You can check the current head angular adjustment value.
  - **[Paper feed]:** Use this button when a margin is to be placed above the pattern printing position.



- **For adjustment procedure, click the [How to adjust] button on the adjustment program screen and see the display.**
- **After writing the adjustment value in EEPROM, print the pattern again and check the adjustment value for properness.**

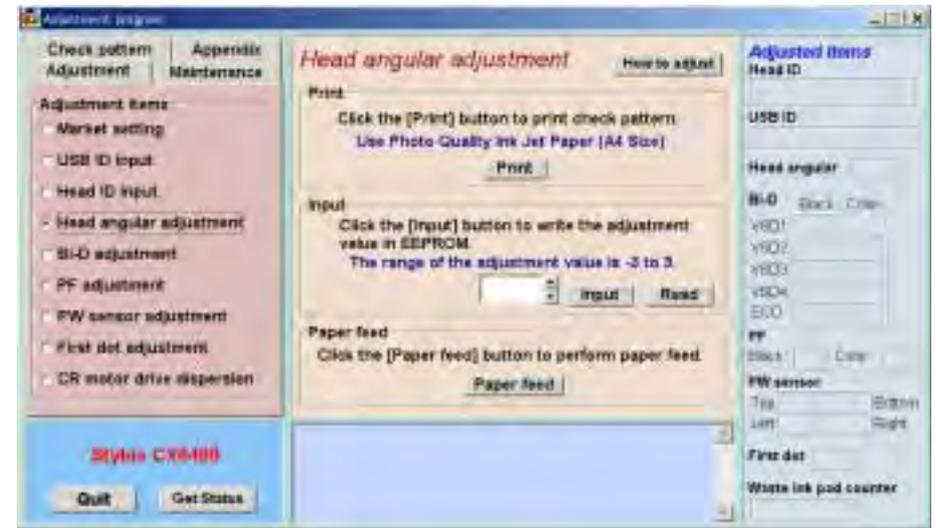


Figure 5-12. Head Angular Adjustment Screen



### 5.3.2.5 Bi-D Adjustment

This adjustment corrects the deviation of printing timing for bidirectional printing which can occur due to variation of assembly precision/component parts of the Printer Mechanism. Print the Bi-D pattern and make adjustment so that the pattern is printed properly.

In addition, you can check the current setting value. Perform this adjustment in the order of printing the pattern → checking → adjustment → printing → checking.

- Media to be used: Plain paper (A4 Size)
- Functions of buttons
  - **[Print]:** Prints the Bi-D adjustment pattern.
  - **[Paper feed]:** Use this button when a margin is to be placed above the pattern printing position.
  - **[Go to input page]:** Displays the input screen.
  - **[Go to print page]:** Displays the printing screen.
  - **[Input]:** Select a desired adjustment item and input the adjustment value, and click the [Input] button to write the adjustment value in EEPROM.
  - **[Read]:** You can check the current adjustment value.



- For adjustment procedure, click the [How to adjust] button on the adjustment program screen and see the display.
- After writing the adjustment value in EEPROM, print the pattern again and check the adjustment value for properness.



Figure 5-13. Bi-D Adjustment Printing Screen



Figure 5-14. Bi-D Adjustment Input Screen



### 5.3.2.6 PF Adjustment

Make adjustment so that the deceleration table of PF motor control compensates for the slip that can occur at high-speed printing, thus preventing white stripes from appearing at high-speed printing.

Perform this adjustment in the order of printing the pattern → checking → adjustment → printing → checking.

- Media to be used: Photo Quality Ink Jet Paper (A4 Size)
- Functions of buttons:
  - **[Print]:** Select color mode, and print the adjustment pattern.
  - **[Input]:** Select a desired adjustment item and input the adjustment value, and click the [Input] button to write the adjustment value in EEPROM.
  - **[Read]:** You can check the current adjustment value.

CHECK  
POINT



- For adjustment procedure, click the [How to adjust] button on the adjustment program screen and see the display.
- After writing the adjustment value in EEPROM, print the pattern again and check the adjustment value for properness.

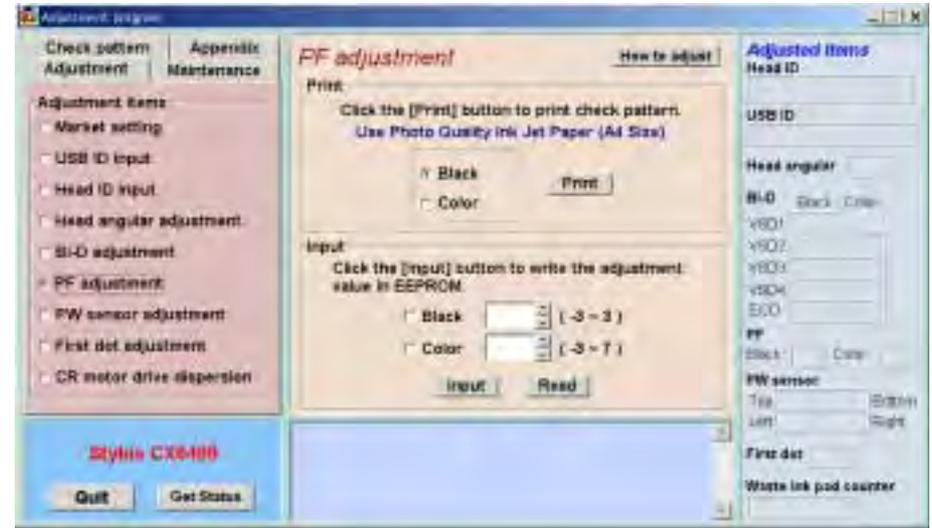


Figure 5-15. PF Adjustment Screen

### 5.3.2.7 PW Sensor Adjustment

The PW sensor is installed on the bottom of the Carriage Unit (refer to p.17). Make adjustment so that the program compensates for a dislocation of the Carriage Unit resulting from its removal or replacement, and write the adjustment value in EEPROM. Perform this adjustment in the order of printing the pattern → checking → adjustment → printing → checking.

- Media to be used: Photo Quality Ink Jet Paper / Glossy Photo Paper (A4 Size)
- Reference value: 5 mm (top and bottom, and right and left)
- Functions of buttons
  - **[Print]:** Prints the adjustment pattern.
  - **[Input]:** Select a desired adjustment item and input the adjustment value, and click the [Input] button to write the adjustment value in EEPROM.
  - **[Read]:** You can check the current adjustment value.



- For adjustment procedure, click the [How to adjust] button on the adjustment program screen and see the display.
- After writing the adjustment value in EEPROM, print the pattern again and check the adjustment value for properness.

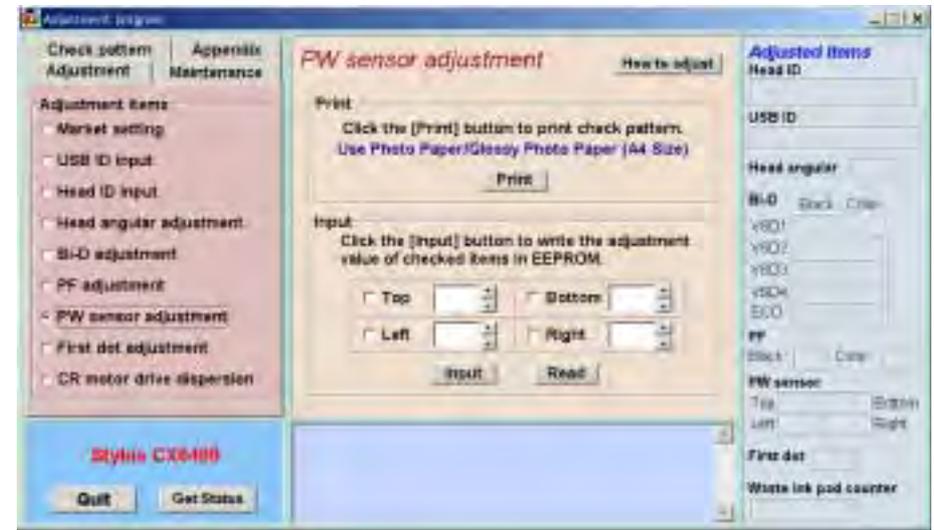


Figure 5-16. PW Sensor Adjustment Screen

### 5.3.2.8 First Dot Adjustment

This adjustment corrects the left margin (Print start position) for post card printing and A4 printing.

The value indicated at the center of the adjustment window is the current value recorded in EEPROM.

Perform this adjustment in the order of printing the pattern → checking → adjustment → printing → checking.

- Media to be used: Plain paper (A4 Size)



- For adjustment procedure, click the [How to adjust] button on the adjustment program screen and see the display.
- After writing the adjustment value in EEPROM, print the pattern again and check the adjustment value for properness.

- Reference value: 3±1.5 mm (from left edge)
- Functions of buttons
  - [Print]: Prints the adjustment pattern.
  - [Paper feed]: Use this button when a margin is to be placed above the pattern printing position.
  - [Input]: Select a desired adjustment item and input the adjustment value, and click the [Input] button to write the adjustment value in EEPROM.
  - [Read]: You can check the current adjustment value.
  - [ < ], [ > ]: 0.0706 mm (compensation value: 4) shifting
  - [ << ], [ >> ]: 1.0584 mm (compensation value: 60) shifting
  - [ ■ ]: 0.0000 mm (compensation value: 0) shifting

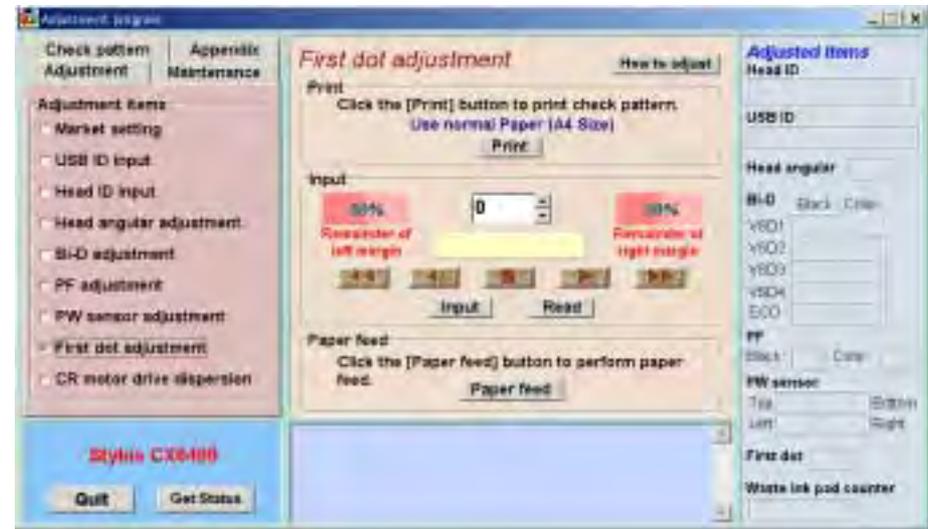


Figure 5-17. First Dot Position Adjustment Screen



### 5.3.2.9 CR Motor Drive Dispersion Sequence



**Be sure to make this adjustment when you have replaced the CR Motor or Power Supply Board with a new one. (In the case of removal or replacement of Main Board, only when the backup of the data in EEPROM cannot be executed)**  
**Do not execute this function even when any component other than above has been removed or replaced.**

In this adjustment, the load on the mechanism is calculated, by conversion, from the current in the CR Motor. Based on this data, the heat generation timing of the CR Motor is calculated precisely and registered in EEPROM. Thus this adjustment optimizes the protective operation timing during continuous driving of the carriage. When a specified component has been removed or replaced, this adjustment is necessary to prevent the motor coil from being burnt.

**Table 5-4. Description of Adjustment and Time for Adjustment**

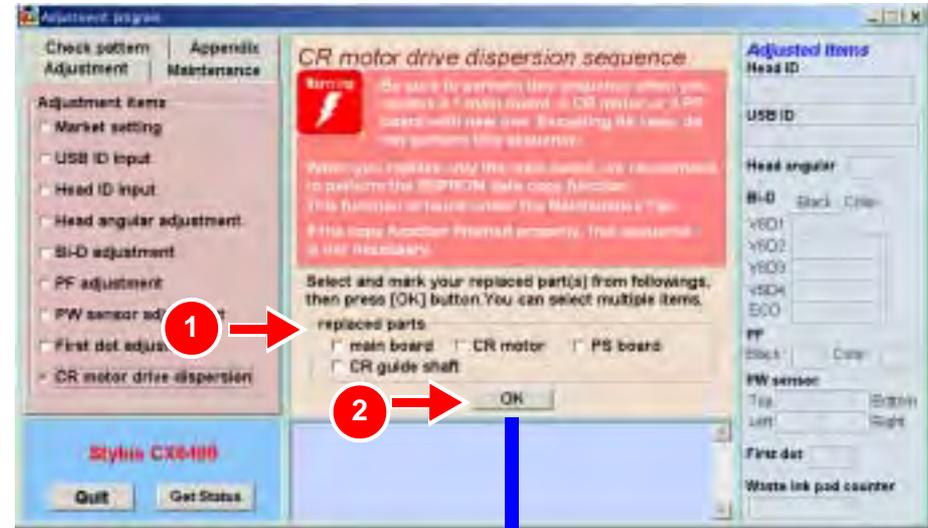
No.	Description	Time for Adjustment *
1	Register the maximum compensation value for CR Motor heat generation control in EEPROM.	CR Motor replacement
		PS Circuit Board replacement
		Main Board replacement
2	Start the CR motor drive dispersion measurement sequence, and register an appropriate heat generation control compensation value in EEPROM.	CR Guide Shaft removal/replacement

Note "\*1": Select the relevant parts from "replaced parts" on the CR Motor Drive Dispersion Sequence screen, and click [OK]. (Two or more parts can be selected)  
 When the selected parts include CR guide shaft, carry out the adjustment of No. 2.



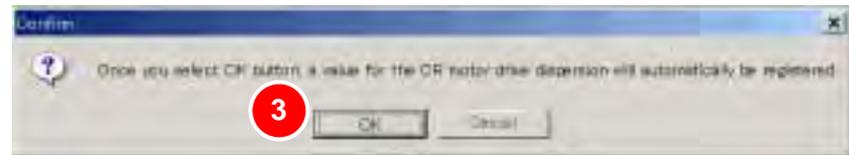
**This adjustment is not required when only the Main Board has been replaced with a new one and EEPROM backup has successfully been achieved.**  
 Refer to "5.3.3.4 EEPROM data copy (p.91)"

- ☐ Functions of buttons
  - [OK]: Click the [OK] button after selecting the relevant parts. Then the related adjustment window is displayed. Clicking the [OK] button executes the adjustment.

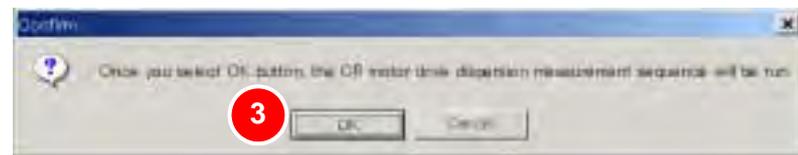


1. Check the check box for each relevant part.
2. Click the [OK] button.
3. The adjustment varies depending on whether "CR guide shaft" is included or not.

**When CR guide shaft is not included**



**When CR guide shaft is included**



**Figure 5-18. CR Motor Drive Dispersion Sequence Screen**



### 5.3.3 Maintenance

This section describes the maintenance items of the adjustment program.

#### 5.3.3.1 Head cleaning

You can execute more intensive cleaning than Head Cleaning, which is carried out by selecting it in the menu on the Operation Panel. This function releases the Head Nozzle from clogging which can cause dot missing.

- Ink consumption (every cleaning)

Type of Cartridge	Model Number	Consumption
Black I/C	T0441	5%
	T0461	11%
Color I/C	T0442~T0444	4%
	T0472~T0474	6%



**If the nozzle is not released from clogging even by this cleaning, execute initial ink filling.**  
 (Refer to “5.3.3.2 Ink charge” (p.89))

#### 5.3.3.2 Ink charge

When the Head or Printer Mechanism has been replaced, ink is not available in the ink route just after its installation, thus ink needs to be filled.

When the following work has been performed, ink must be initially filled by executing this item.

- Printer Mechanism replacement
- Printer Head replacement
- Ink consumption (every charging)

Type of Cartridge	Model Number	Consumption
Black I/C	T0441	15%
	T0461	34%
Color I/C	T0442~T0444	12%
	T0472~T0474	18%

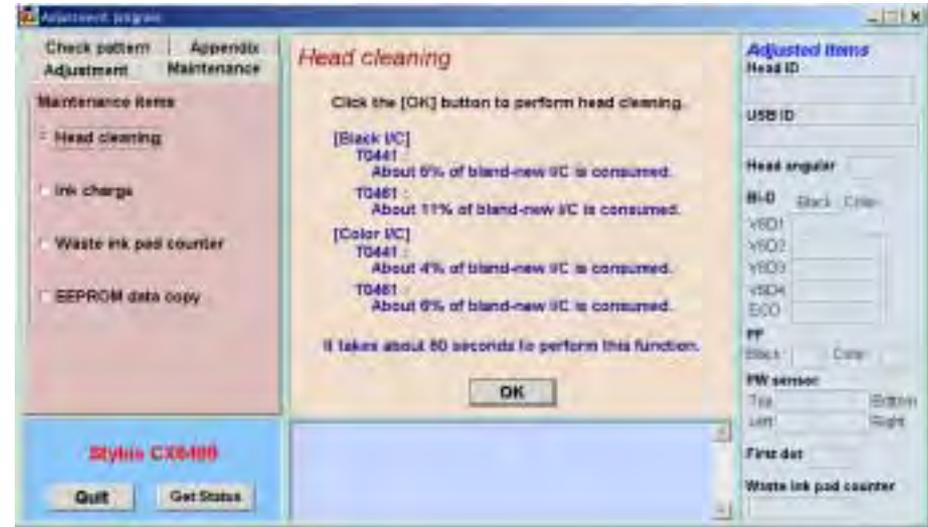


Figure 5-19. Head Cleaning Screen

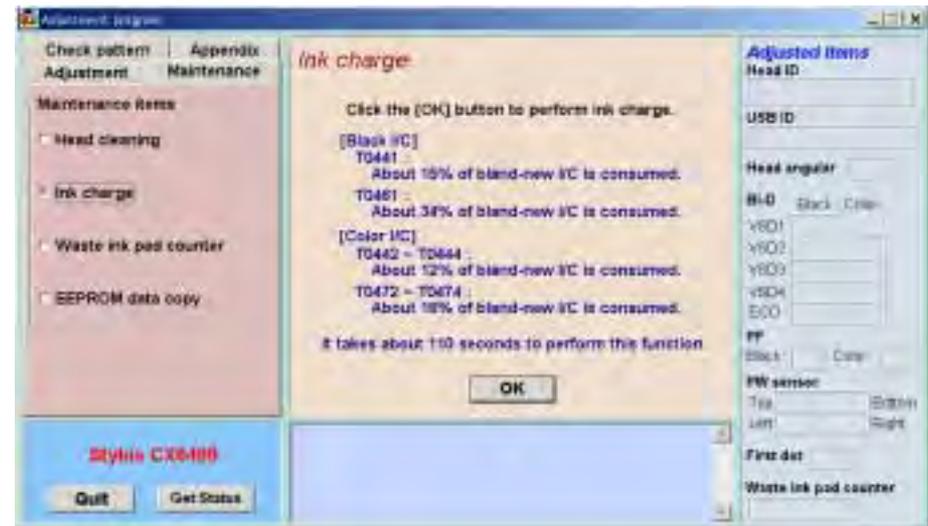


Figure 5-20. Ink Charging Screen



### 5.3.3.3 Waste ink pad counter

This counter controls total ink eject volume and displays error status if the volume exceeds the set value, displaying the waste ink overflow indication (printer error indication and Error LED blinking.). By selecting this item, you can check or clear the waste ink pad counter.

This operation is necessary after the following work.

- Waste Ink Porous Pad replacement

- Maximum count: 20500~41000 (depending on printing conditions)
- Functions of buttons
  - [Read]: You can check the current count.
  - [Reset]: Clear the waste ink pad counter value. (Return the value to zero)

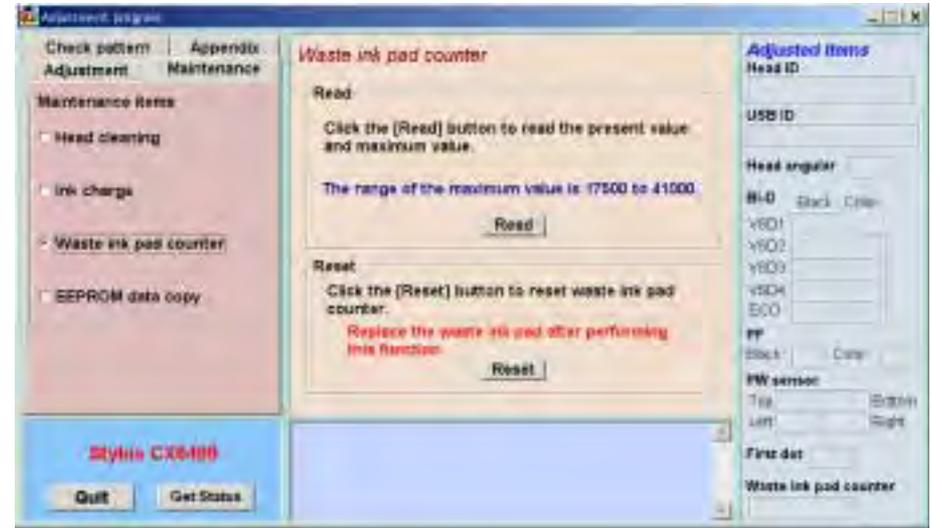


Figure 5-21. Waste Ink Pad Counter Screen

### 5.3.3.4 EEPROM data copy

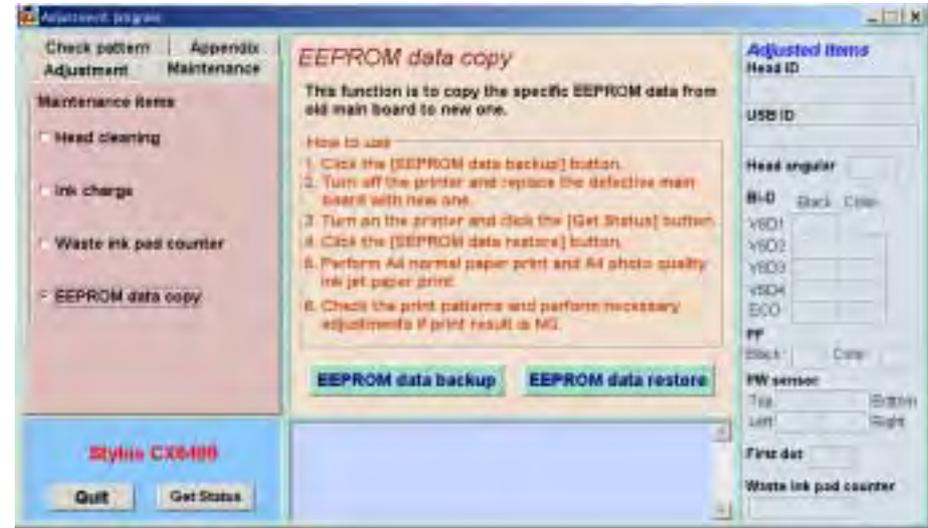
The function is to back up → restore (to the new Main Board) the adjustment values that have been stored in EEPROM on the Main Board. Use of this function will reduce the man-hour for adjustment significantly.

The data to be backed up are as follows.

**Table 5-5. Data to be Backed Up**

Data to be Backed Up	Page for Adjustment
USB ID	p.82
Head ID	p.83
Head angular adjustment value	p.83
Bi-D adjustment value	p.84
PF adjustment value	p.85
PW sensor adjustment value	p.86
First dot position adjustment value	p.87
CR motor drive dispersion compensation value	p.88
Ink consumption counters	-
Waste ink pad counter	p.90

Note "\*": For your confirmation, the adjustment values are displayed at “Adjusted items” in the right area on the screen.



**Figure 5-22. EEPROM Data Copy Screen**



After restoration, print the check patterns for all the adjustments above and check each adjustment value. If there is any abnormality, make adjustment for the relevant items.

- Refer to “5.3.4 Check Pattern (p.92)”



### 5.3.4 Check Pattern

This operation prints various adjustment patterns.  
The patterns for the adjustment items are printed en bloc for each paper type.



After printing the adjustment patterns, if any abnormal pattern is found, perform the necessary adjustment by referring to the pages for the relevant adjustment item.

#### 5.3.4.1 A4 plain paper print

The table below lists the patterns to be printed here.

Print Pattern	Refer to
PW sensor adjustment	p.86
Beta pattern	-
Vertical alignment	-
Horizontal alignment	-

#### 5.3.4.2 A4 photo quality paper print

The table below lists the patterns to be printed here.

Print Page	Print Pattern	Refer to
1st page	Bi-D adjustment	p.84
2nd page	Top margin adjustment	-
	First dot adjustment	p.87
	Head angular adjustment	p.83
	PF adjustment	p.85
	Accumulated pitch line	-

#### 5.3.4.3 Nozzle check pattern print

This function prints the nozzle check pattern. This pattern can be printed also on the printer driver.

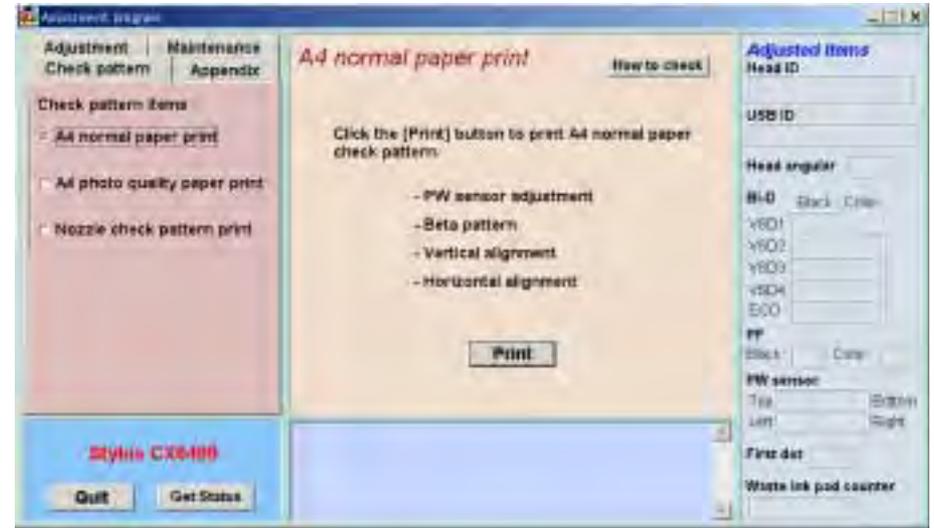


Figure 5-23. Check Pattern Printing Screen (Plain paper)



Figure 5-24. Check Pattern Printing Screen (Photo quality paper)



## 5.3.5 Appendix

### 5.3.5.1 Save all EEPROM data

This function copies all the data in EEPROM into a file. Use this function at the analysis of the product.



Figure 5-25. Save All EEPROM Data Screen

## 5.4 Uploading Firmware

The SPC machine can update firmware, using IPL. This section describes its procedure.

### 5.4.1 Firmware Program File

Change the name of the supplied file with an extension “dat” to the designated file name, and place the file at the root directory of a memory card.



- The memory card shall have been formatted in FAT.
- The corresponding media are as follows:  
CF Card/xD Card/Smart Media/SD Card/Memory Stick

### 5.4.2 Firmware updating steps

1. Switch on the power source while pressing the panel keys as follows:  
[Setup] + [B&W] + [Color]
2. When the IPL update mode is started, insert a card containing the program into the card slot.
3. The process of the firmware update is displayed on LED or LCD.
4. After it is displayed that the firmware update is complete, switch off the power source manually to end the firmware update.



**Never pull out the inserted media before the update is complete.**

### □ IPL Update Process Display

The following order of the steps shows the transition of the condition concerned with the normal firmware update.

**Table 5-6. List of process displays given during IPL update**

Step	Name	Contents
1	Firmware Update Mode	Firmware update program is started. This can be canceled if panel is held down.
2	Insert media	Media insertion is awaited. Or inserted media is being checked. (it takes some time to detect and check the insertion.)
3	Reading update firmware	Firmware is being read into system from firmware.
4	Deleting old firmware	Old firmware is being deleted in printer.
5	Writing update firmware	New firmware is being registered/written.
6	Firmware update completed	New firmware update has succeeded/ended.

### 5.4.3 Update error

**Table 5-7. List of update errors**

Name	Contents
Previous firmware update failed*	Records are remaining that firmware update using the same media was performed on another printer and failed. It is necessary to confirm the firmware of the printer previously updated.
Card initialization failed	Media or format that cannot be recognized.
No update firmware	Updating file is not existent in media.
Update failed	Read from media, firmware delete and firmware write have failed.

Note \*: If “Previous firmware update failed” is displayed during firmware update, “hidden file” attribute is set to firmware file stored in media. Unless the attribute is canceled, the media file cannot be used for the firmware update.

The attribute can be canceled by selecting a corresponding file in Windows Explorer, and “File” -> “Property” from the menu, then removing check in the check box of the hidden attribute.

Or, the following command needs to be specified on the command prompt:  
attrib -H A:\FWD10UP.dat



CHAPTER

6

# MAINTENANCE

## 6.1 Overview

---

This section describes maintenance to maintain function and performance of this product.

### 6.1.1 Printer Unit Service Maintenance

If print irregularity (missing dot, white line, etc.) has occurred or the printer indicates "Maintenance Error", take the following actions to clear the error.

#### □ Head Cleaning

The printer has a built-in head cleaning function, which is activated by operating the operation panel. Confirm that the printer is in stand-by state (The power indicator is not blinking).

Execute "head Cleaning" with operation panel menu button and the printer starts cleaning sequence.

#### □ Maintenance Error

Ink is used for the operation such as cleaning as well as printing. Therefore, the printer waste certain amount of ink and drains it into waste ink pad, while counting the amount of the waste ink.

Once the amount of the waste ink reaches the predetermined limit, the printer indicates "Fatal Error" (LED: blink) and the waste ink pad should be replaced.

- Overflow Counter (Protection Counter A) count up  $\geq 44436$
- Timing for replacing the Waste Ink pad

When the total amount of the waste ink reaches the predetermined limit, the printer indicates "Fatal Error" (LED: blink). Also, During repair servicing, Confirm firmware version, select code page, nozzle check pattern together with overflow counter.

If the ink counter value is close to its upper limit, notify your customer and recommend that the waste ink pad is to be replaced. (if the waste ink pad is not replaced at that time, there is the possibility that "Maintenance Error" will occur just after the printer is retuned to the customer.)

Once you have the confirmation from the customer, replace the waste ink pad.

- Replacement procedure

Refer to "4.6.4 Waste Ink Pads" on page 72.

- Treatment after the Replacement

Reset the Overflow counter (Protection counter A). Power on printer and enter into special menu (ordinary operation) and execute waste ink counter reset or implement counter clear by adjust program.



## 6.2 Cleaning

Clean the unit when dirt is conspicuous. In particular, a dirty document glass plate will have a direct affect when acquiring image quality, so completely remove marks on the glass and keep it clean.

**CAUTION**


- Never use chemical solvents, such as thinner, benzine as they may deform or deteriorate plastic and rubber products.
- Be careful not to damage any components when you clean inside the printer.
- Do not scratch the surface of PF roller assembly. Use soft brush to wipe off any dusts. Use a soft cloth moistened with alcohol to remove the ink stain.
- Do not habitually use the cleaning sheets included with the media. Habitual use can cause removal of the PF Roller coating.  
There is no problem when the adhesive side of the cleaning sheet is faced toward the ASF LD Roller for cleaning of the ASF LD Roller.

 Exterior parts

Use a clean soft cloth moistened with water and wipe off any dirt. If the exterior parts are stained with ink, use a cloth moistened with neutral detergent to wipe it off.

 Inside the printer

Use a vacuum cleaner to remove any paper dust.

 Document glass

Remove dust or any paper with a clean dry cloth. In case dirt is serious or alien substance is stick, wipe it off with a cloth moistened with neutral detergent. In case Stain is remained, wipe again with a dry clean cloth.

 ASF Roller

For cleaning of rollers inside the ASF Unit using the adhesive surface of the cleaning sheets, set the cleaning sheet in place and then put your hand on the sheet to help push it inwards while pressing the color copy button or the monochrome copy button. Because the printer has two types of rollers (LD Roller and Retard Roller), perform cleaning a second time after reversing the orientation of the adhesive surface.

## 6.3 Lubrication

### 6.3.1 Specified Grease

Table 6-1. List of Specified Greases

Type	Name	EPSON Code	Supplier
Grease	G-26	1080614	EPSON
	G-45	1033657	
	G-46	1039172	
	G-63	1218320	

### 6.3.2 Scanner Lubrication Point

In case of replacing Scanner CR Unit parts or operation sound of carriage shift is remarkably big, lubrication is necessary. Following tables show designated grease and lubrication point.

Table 6-2. Lubrication Point

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Scanner Guide Shaft (p48)	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Lubrication Point :</b> CIS Unit sliding surface (4 points)</li> <li><input type="checkbox"/> <b>Lubrication Amount :</b> 0.2 mm thick and 25 mm wide</li> </ul>	G-26	Use a brush to apply it.
Driven Pulley (p50)	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Lubrication Point :</b> Shaft of Driven Pulley</li> <li><input type="checkbox"/> <b>Lubrication Amount :</b> 0.2 mm thick on whole periphery</li> </ul>	G-26	Use a brush to apply it.

**CAUTION**



If Lubrication exceeds designated volume, mechanism may be damaged or function may be harmed. Accordingly designated volume to be kept for lubrication.

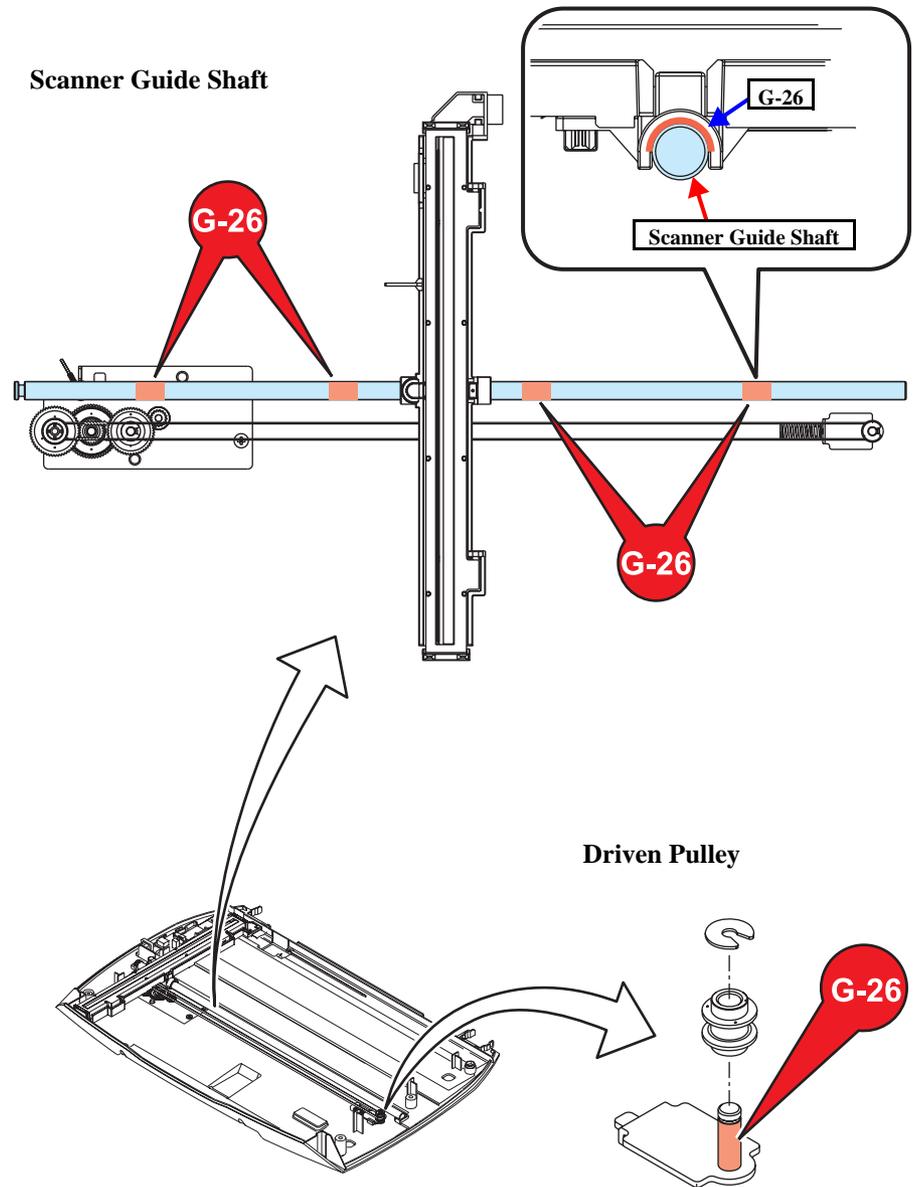


Figure 6-1. Scanner Unit Lubrication Point



### 6.3.3 Printer Lubrication Point

Type and suitable volume of grease lubricated to Printer is decided base on factory evaluation. Accordingly, definitely use suitable volume of designated grease to designated point for repair and maintenance of products. Designated grease and usage point are shown as below.

**CAUTION**

- Never use grease except for designated one, as others must badly affect and damage machinery life/function of the product.
- As suitable volume is also designated based on evaluation result, avoid applying undesignated volume.

Table 6-3. List of Printer Lubrication Places

Units to be Lubricated	For Disassembly and Assembly, refer to:	For Lubrication, refer to:
Carriage Unit	Carriage Unit (p56)	p99
Printer Main Frame	Middle Housing Removal (p44)	p100
Lower Paper Guide	Lower Paper Guide (p67)	p100
PF Roller Unit	PF Roller Unit (p68)	p100
Upper Paper Guide	Upper Paper Guide (p67)	p101
Pulley Driven Holder	ASF Unit Removal (p61)	p101
Paper Eject Rooler Unit	Paper Eject Rooler Unit (p66)	p101
ASF Unit	ASF Unit Removal (p61) and ASF Unit Disassembly (p62)	p102
Pump Unit	Pump Unit (p58)	p103
Lower Housing	Stacker (p70)	p103

Carriage Unit

Table 6-4.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Carriage Unit (p56)	<input type="checkbox"/> <b>Lubrication Point :</b> Carriage Unit Shaft Socket <input type="checkbox"/> <b>Lubrication Amount :</b> 0.26~0.30g	G-63	Use a brush to apply it. (See Figure 6-2)

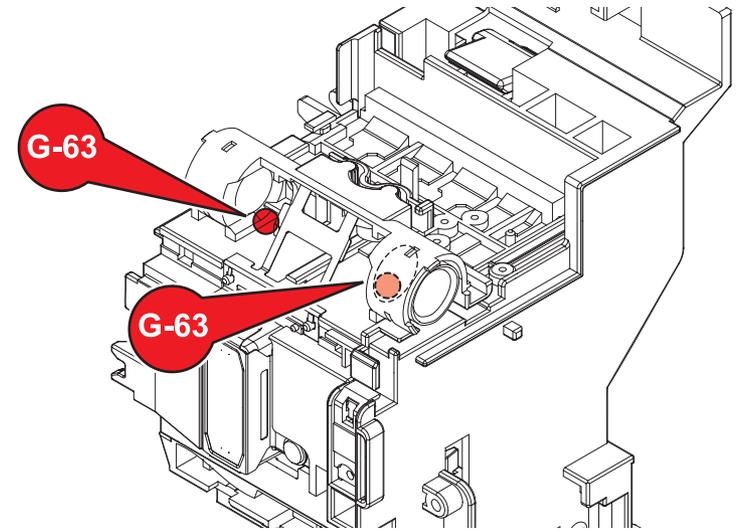


Figure 6-2. Carriage Unit Lubrication



□ Printer Main Frame

Table 6-5.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Printer Main Frame(p45)	<input type="checkbox"/> <b>Lubrication Point :</b> Main Frame Upper Part back side (Between Change Lever and Main Board Unit)  <input type="checkbox"/> <b>Lubrication Amount :</b> 0.16±0.02g (2sec)	G-26	Use a brush to apply it. (See Figure 6-3)

□ Lower Paper Guide

Table 6-6.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Lower Paper Guide (p67)	<input type="checkbox"/> <b>Lubrication Point :</b> PF Roller Bearing  <input type="checkbox"/> <b>Lubrication Amount :</b> φ1 x 3mm	G-26	Use a brush to apply it. (See Figure 6-4 ①)

□ PF Roller Unit

Table 6-7.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
PF Roller Unit (p68)	<input type="checkbox"/> <b>Lubrication Point :</b> Grounding Spring and PF Roller Shaft sliding part  <input type="checkbox"/> <b>Lubrication Amount :</b> 1(one circumference)	G-26	Use a brush to apply it. (See Figure 6-4 ②)
	<input type="checkbox"/> <b>Lubrication Point :</b> PF Roller Shaft right and left-end full-circumference (bushing bore)  <input type="checkbox"/> <b>Lubrication Amount :</b> 1 x 3mm	G-26	Use a brush to apply it. (See Figure 6-4 ③)



- Do not attach the grease to the paper path.
- Be carefully not lubricate on coated surface.
- Do not touch coated surface of PF Roller.

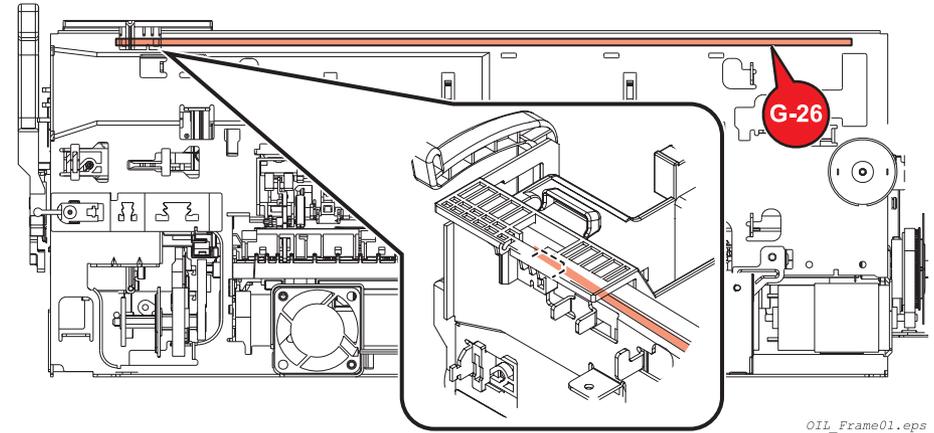


Figure 6-3. Printer Main Frame Lubrication

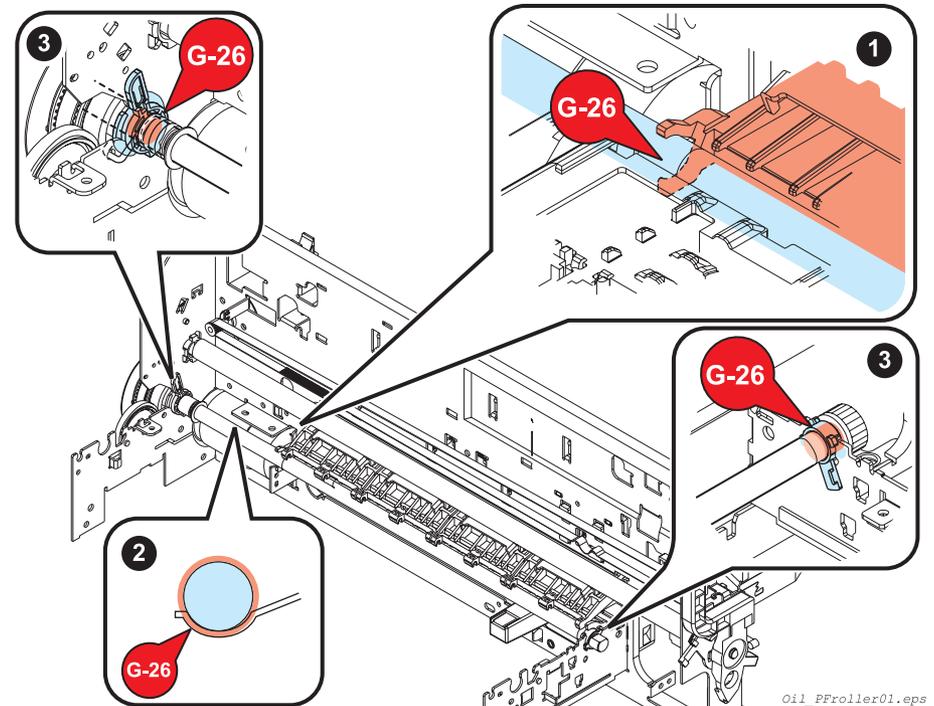
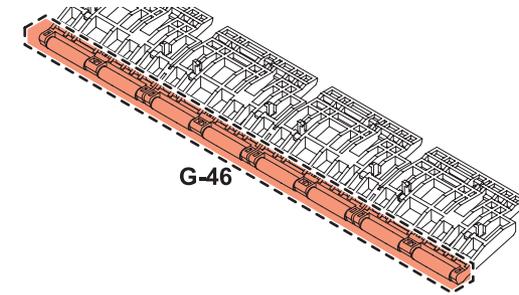


Figure 6-4. PF Roller Lubrication

□ Upper Paper Guide

Table 6-8.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Driven Roller(p67)	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Driven Roller x 8</li> <li>□ <b>Lubrication Amount :</b> Soak in basin containing G-46 and remove immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended. (See Figure 6-5)



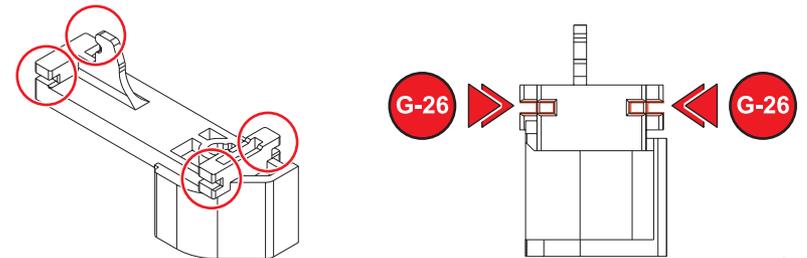
OIL\_Roller01.eps

Figure 6-5. Driven Roller Lubrication

□ Pulley Driven Holder

Table 6-9.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Pulley Driven Holder (p55)	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Pulley Driven Holder</li> <li>□ <b>Lubrication Amount :</b> φ1 x 2mm x 4points</li> </ul>	G-26	Use a injector to apply it. (See Figure 6-6)



OIL\_PDU01.eps

Figure 6-6. Pulley Driven Holder Lubrication

□ Paper Eject Rooler Unit

Table 6-10.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Compression Spring (p66)	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Paper Eject Roller Shaft contact</li> <li>□ <b>Lubrication Amount :</b> φ1 x 3mm</li> </ul>	G-26	Use a injector to apply it. (See Figure 6-7)

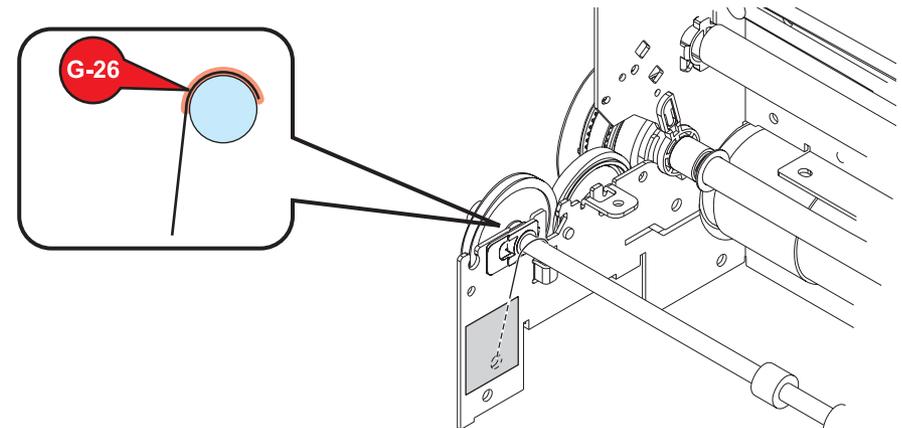


Figure 6-7. Lubricating of Paper Eject Roller Unit Grounding Spring

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□ ASF Unit

Table 6-11. List of ASF Unit Lubrication Places

Part to be Lubricated	Lubrication place/amount	Type	Remarks (Fig No.)
Paper Back Lever	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Paper Back Lever shaft socket (2 places)</li> <li>□ <b>Lubrication Amount :</b> Shaft socket entire length</li> </ul>	G-26	Use a brush to apply it.(1)
	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Paper Back Lever left end</li> <li>□ <b>Lubrication Amount :</b> Soak in basin containing G-46 and remove immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended.(2)
Paper Back Support Lever	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Paper Back Support Lever</li> <li>□ <b>Lubrication Amount :</b> Soak in basin containing G-46 and remove immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended.(3)
LD Roller Shaft	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> LD Roller Shaft left/right ends</li> <li>□ <b>Lubrication Amount :</b> Soak in basin containing G-46 and remove immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended.(4)
Clutch Gear	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Combination Gear Ratchet 65.6 &amp; Spur Gear 48</li> <li>□ <b>Lubrication Amount :</b> Soak in basin containing G-46 and remove immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended.(5)
ASF Trigger Lever	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> ASF Trigger Lever Right End</li> <li>□ <b>Lubrication Amount :</b> Corner surface area</li> </ul>	G-26	Use a brush to apply it.(6)
	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> ASF Trigger Spring right and left sliding parts</li> <li>□ <b>Lubrication Amount :</b></li> </ul>	G-26	Use a brush to apply it.(7)
Torsion spring	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Spring torsion surface</li> <li>□ <b>Lubrication Amount :</b></li> </ul>	G-26	Use a brush to apply it.(8)
Change Lever	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Carriage sliding part</li> <li>□ <b>Lubrication Amount :</b> φ3mm</li> </ul>	G-26	Use a brush to apply it.(9)
ASF Unit	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Joint between ASF Trigger Lever and ASF Frame</li> <li>□ <b>Lubrication Amount :</b> φ1 x 2mm (x4)</li> </ul>	G-26	Use a injector to apply it.(10)
	<ul style="list-style-type: none"> <li>□ <b>Lubrication Point :</b> Hopper sliding part</li> <li>□ <b>Lubrication Amount :</b> Hopper sliding parts (x4)</li> </ul>	G-46	Apply it with brush in arrow direction.(1)

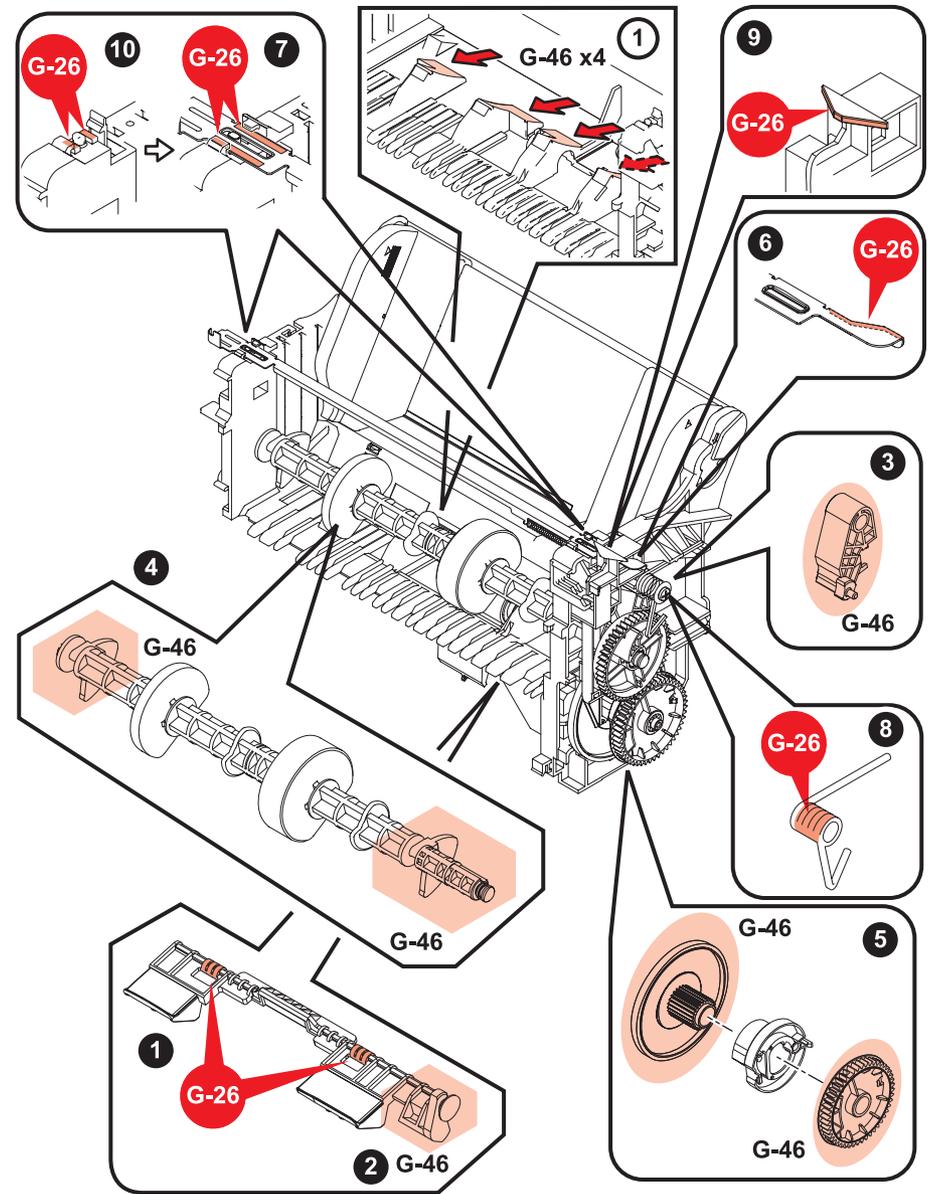


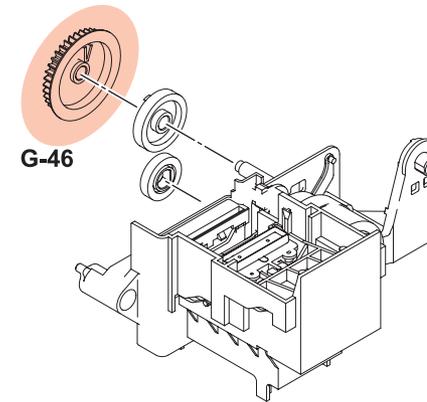
Figure 6-8. ASF Unit Lubrication



❑ Pump Unit

Table 6-12.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
SPUR GEAR 30.4 (p58)	<ul style="list-style-type: none"> <li>❑ <b>Lubrication Point :</b> SPUR GEAR 30.4</li> <li>❑ <b>Lubrication Amount :</b> Put it in basin containing G-46, then take it out immediately.</li> </ul>	G-46	Joint use of Flux Dispenser is recommended. (See Figure 6-9)



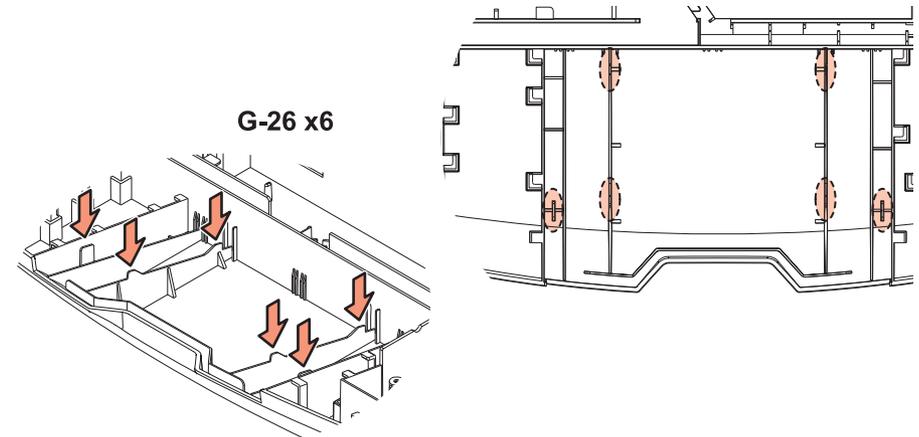
Oil\_Pump01.eps

Figure 6-9. Lubricating of Pump Unit Spur Gear 30.4

❑ Lower Housing (Stacker installing places)

Table 6-13.

Part to be Lubricated (See Chapter4 on page )	Lubrication place/amount	Type	Remarks (Fig No.)
Lower Housing (p70)	<ul style="list-style-type: none"> <li>❑ <b>Lubrication Point :</b> Stacker installing places (6 places)</li> <li>❑ <b>Lubrication Amount :</b></li> </ul>	G-46	Use a brush to apply it. (See Figure 6-10)



OIL\_Lower01.eps

Figure 6-10. Lubricating of Lower Housing (at Stacker installing places)



CHAPTER

7

APPENDIX

## 7.1 Connector Connections

### 7.1.1 Connector Arrangement

The diagram below shows connection relationships for Stylus CX6300/CX6400/CX6500/CX6600 circuit board connectors.

Table 7-1.

CN No.	Color	Pins number	Connected to
CN2	-	4	USB 1.0/2.0
CN3	White	11	Power Unit
CN5	(FFC)	12	CIS Unit (CCD+LED)
CN6	(FFC)	32	Panel Board
CN8	White	3	PE Sensor
CN9	White	2	CR Motor
CN10	Black	2	PF Motor
CN11	(FFC)	7	HP Sensor + Drive Unit(Scanner Board)
CN12	(FFC)	5	PF Encoder
CN13	(FFC)	26	Printhead (I/C Board + CR Board)
CN14	Yellow	2	PG Sensor
CN15	Red	2	Mist Fan
CN16	(FFC)	26	Printhead
CN17	-	50	Card Slot (CF)
CN18	-		Card Slot

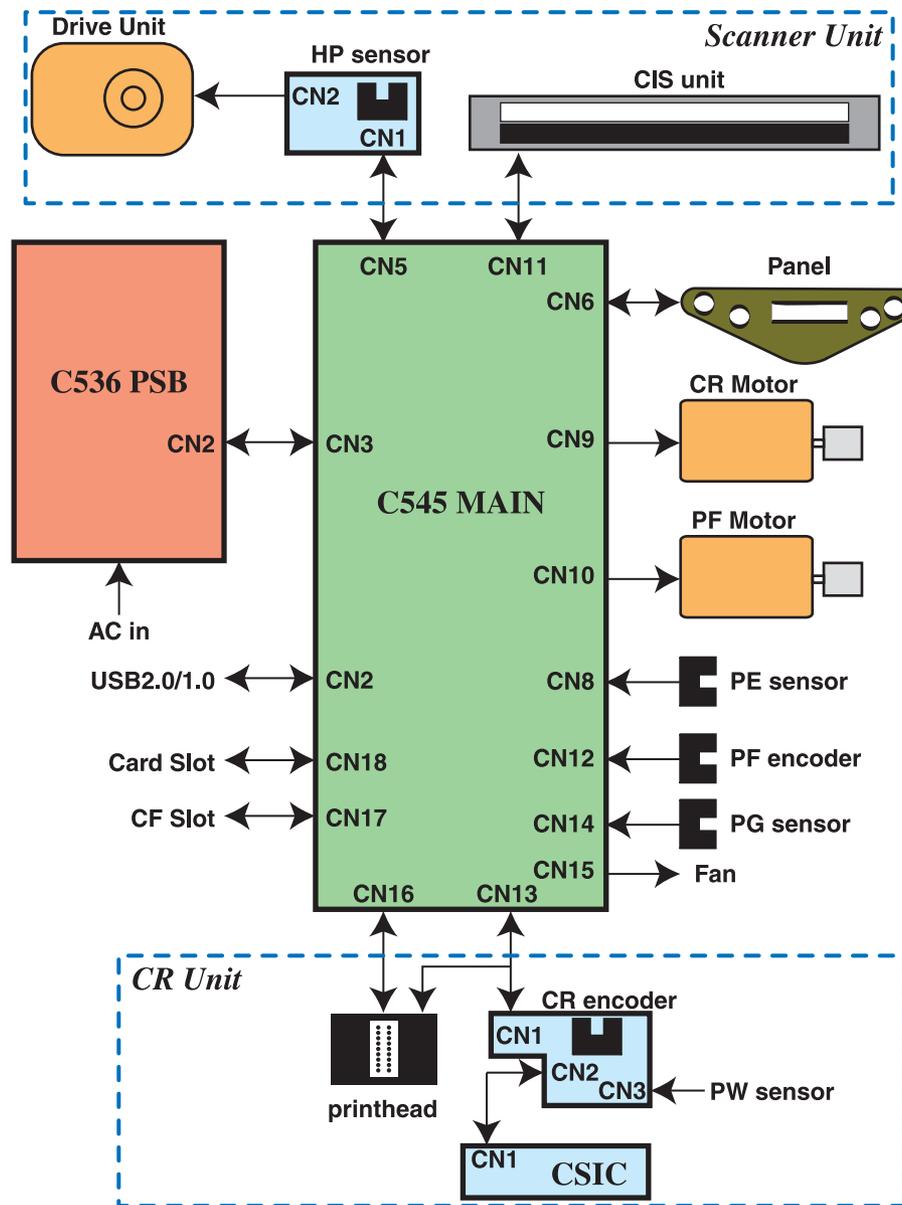


Figure 7-1. Connection Relationships of Circuit Board Connectors

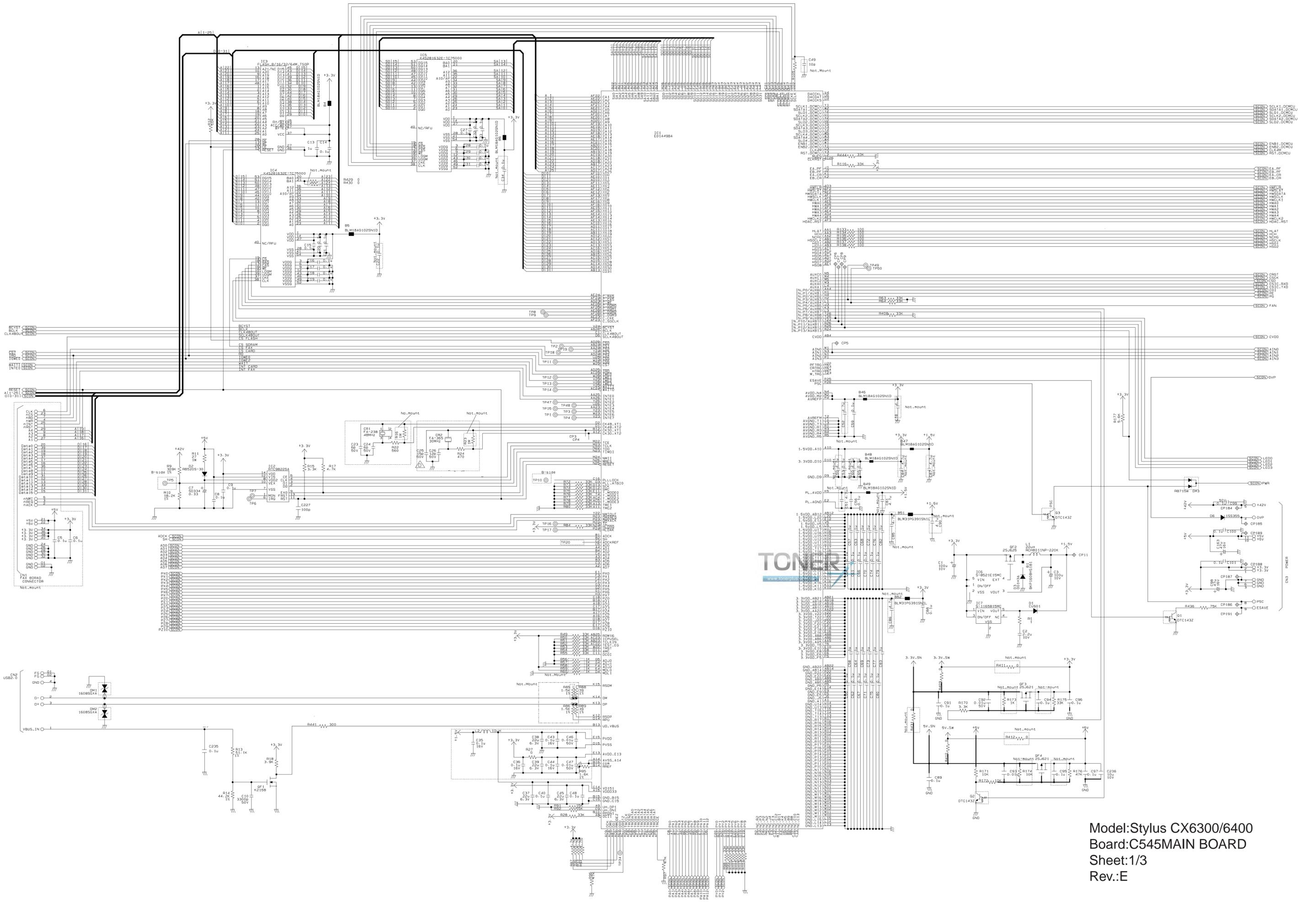
## 7.2 Circuit Figure

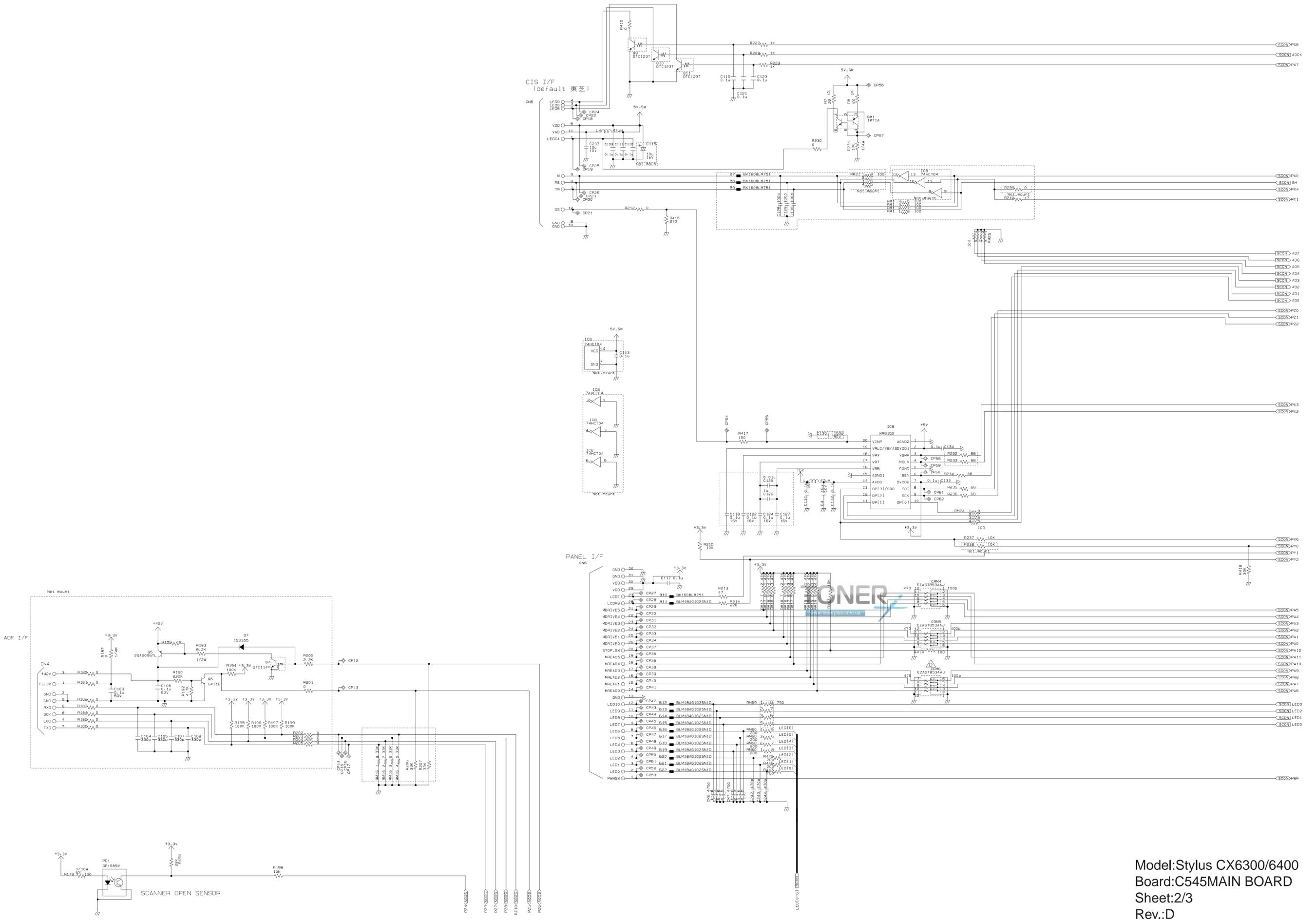
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Circuit Figure of each board for this printer are shown in the following pages.

- C545 Main Board
- C545 Panel Board
- C545 PSB Board
- C545 PSE Board

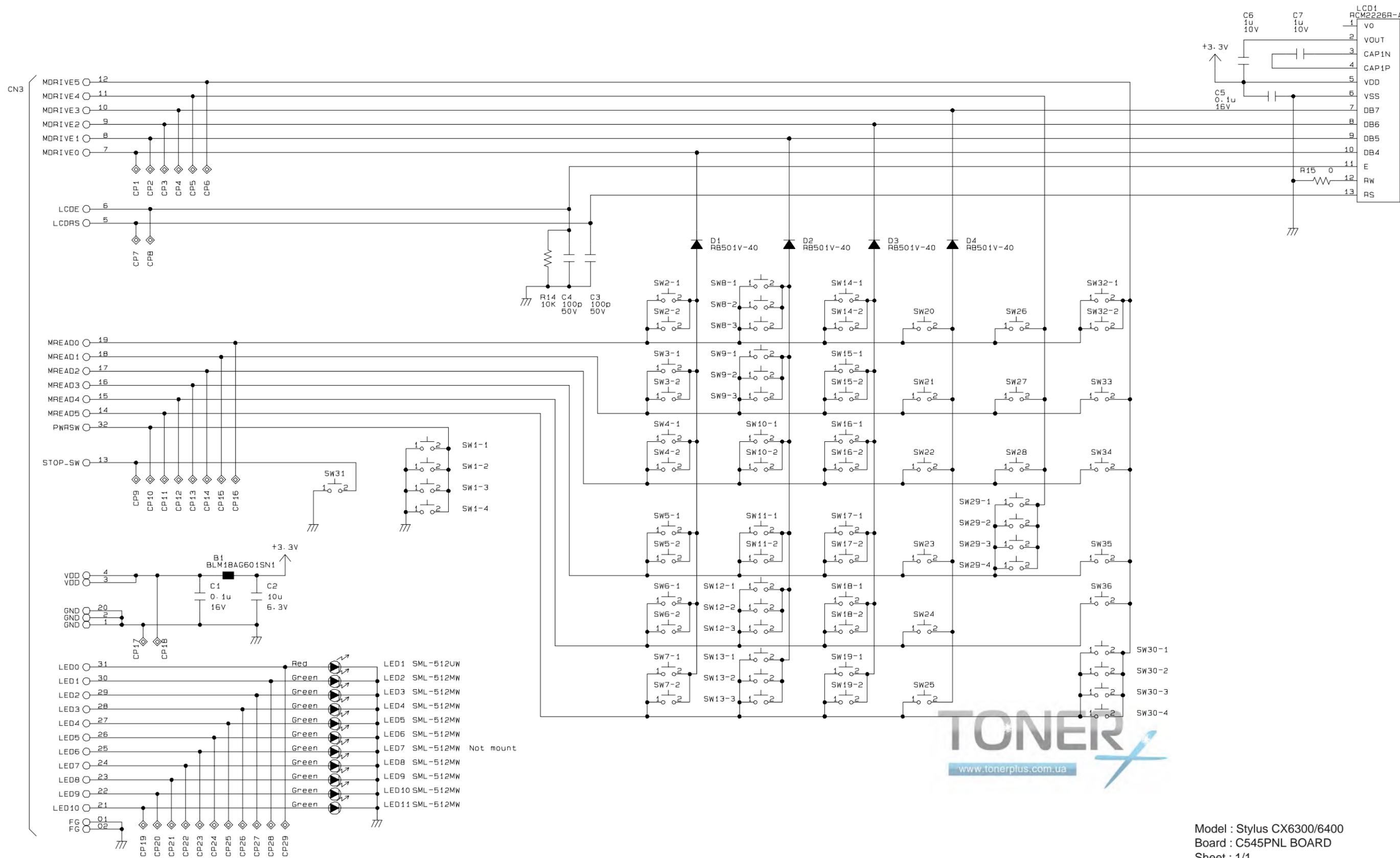




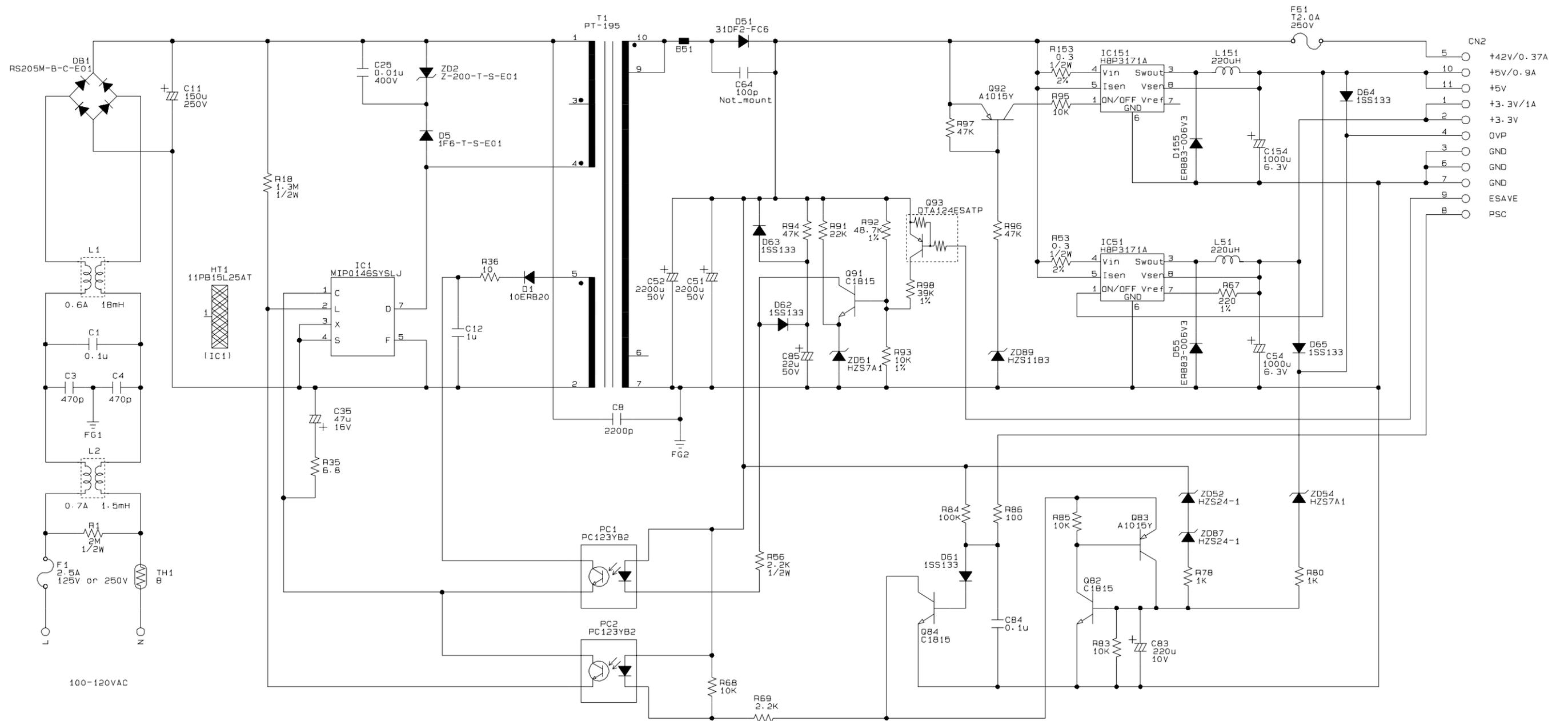


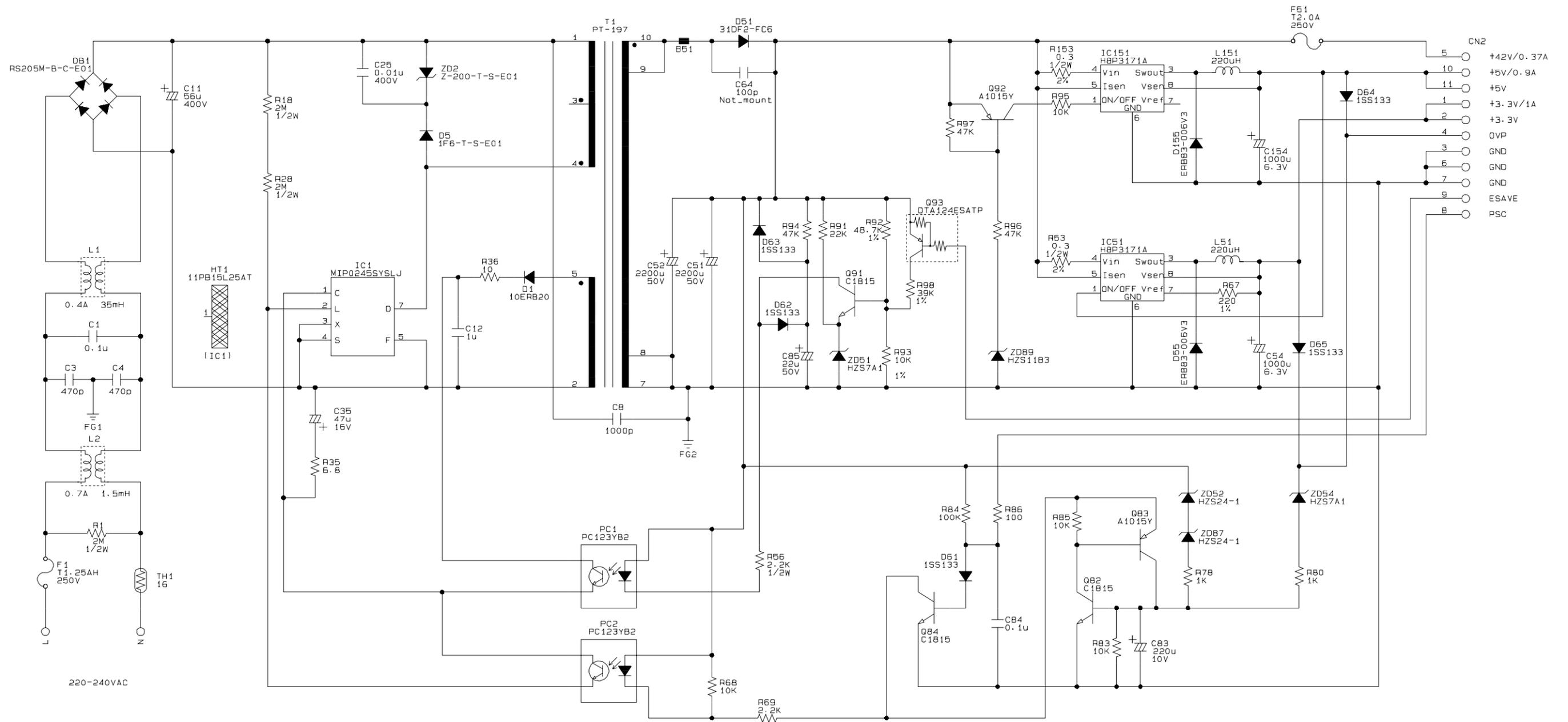
Model: Stylus CX6300/6400  
 Board: C545MAIN BOARD  
 Sheet: 2/3  
 Rev.: D





Model : Stylus CX6300/6400  
 Board : C545PNL BOARD  
 Sheet : 1/1  
 Rev. : B



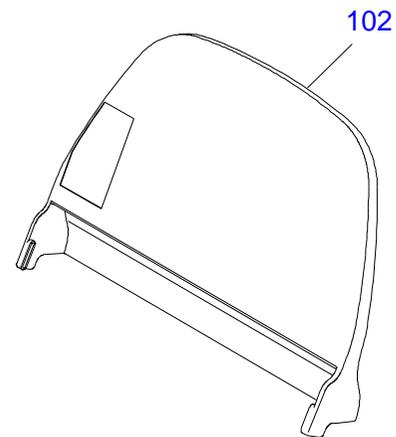
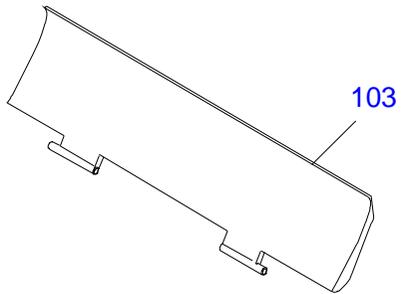
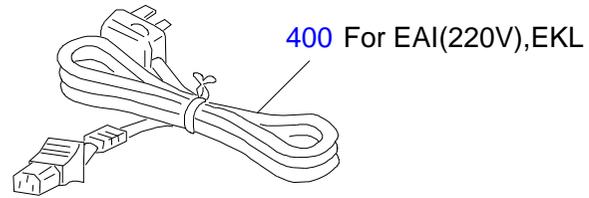


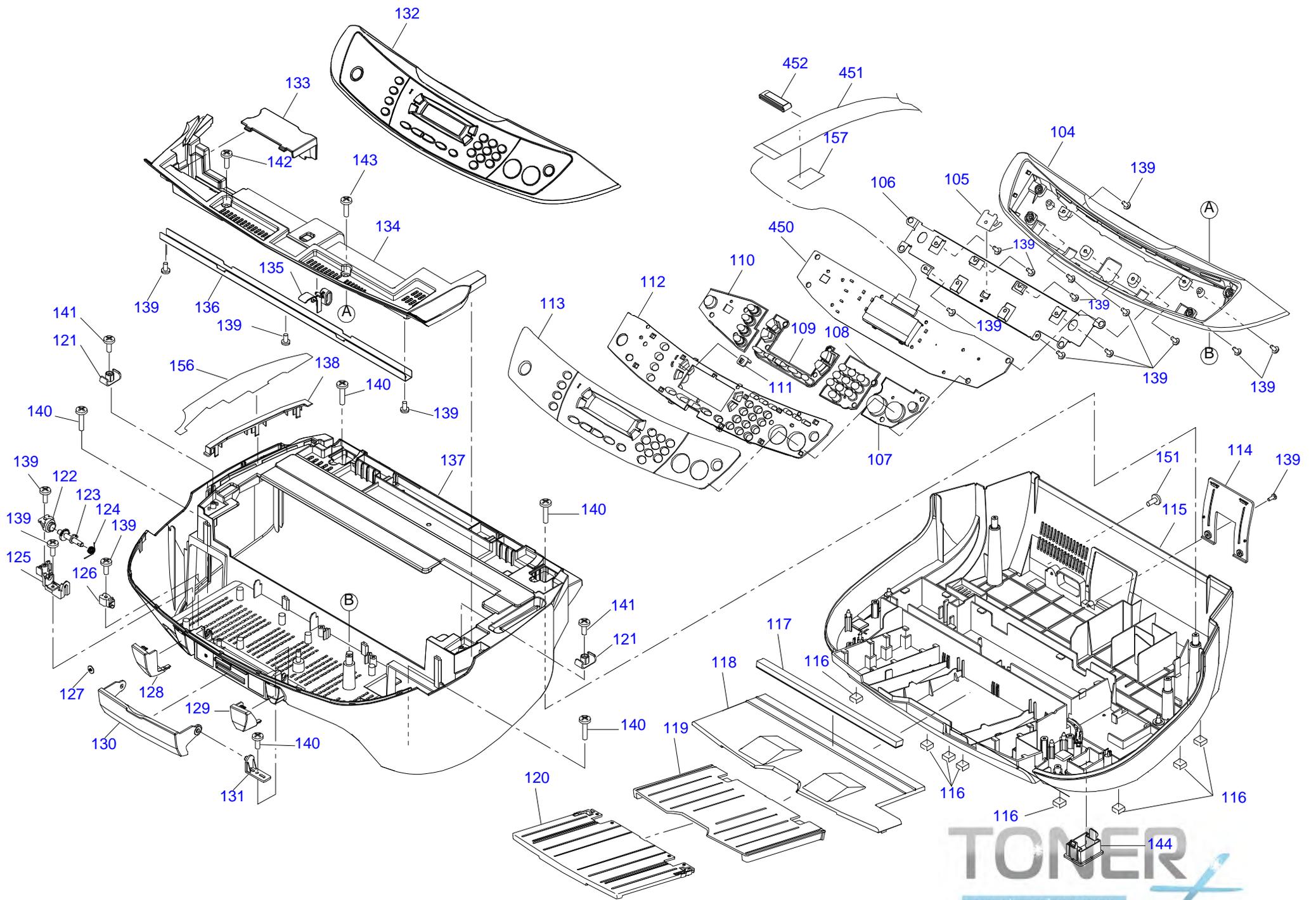
## 7.3 Exploded Diagrams

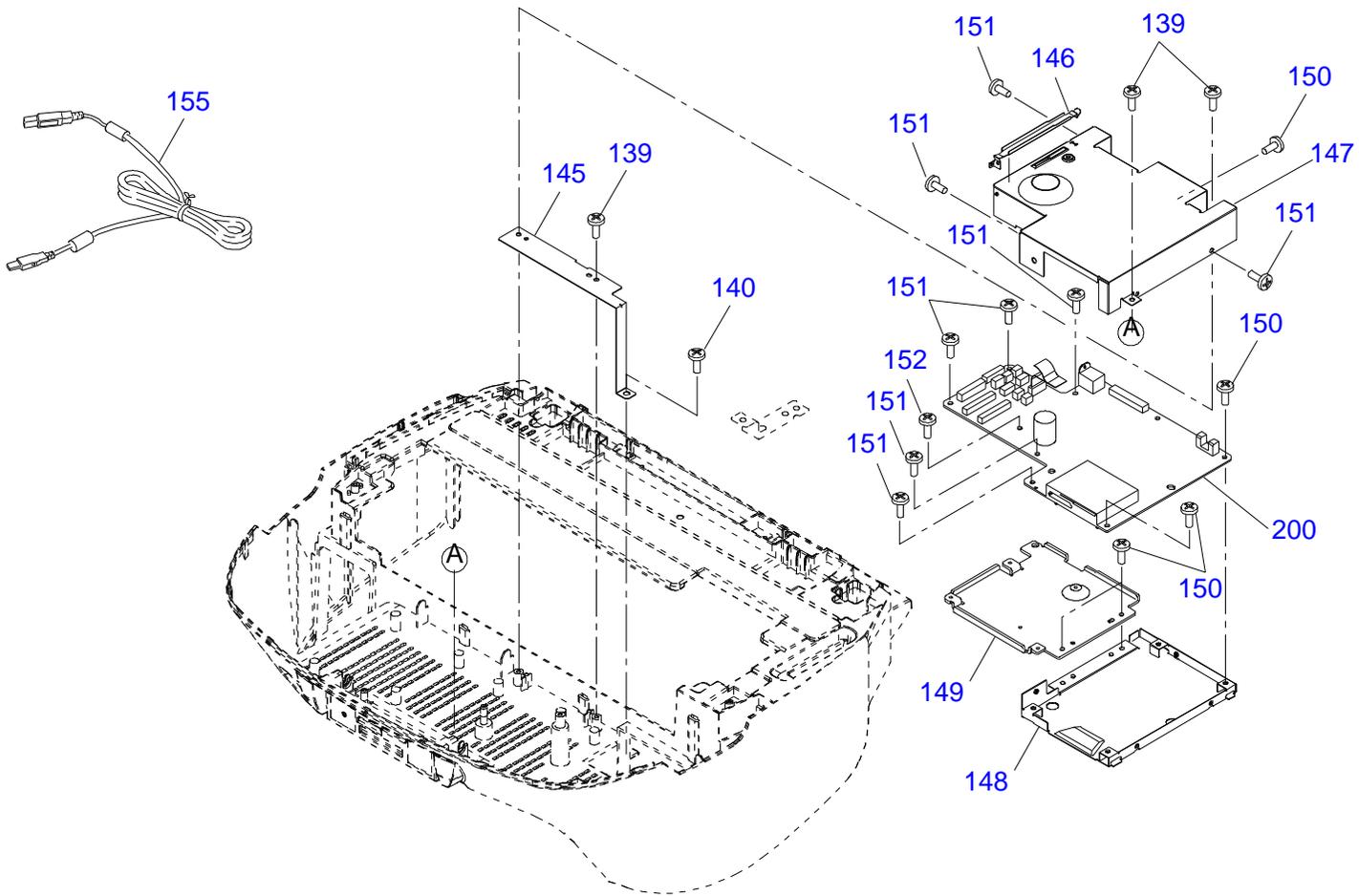
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This section shows exploded diagrams of CX6300/CX6400/CX6500/CX6600.









EPSON STYLUS PHOTO CX6400/6300

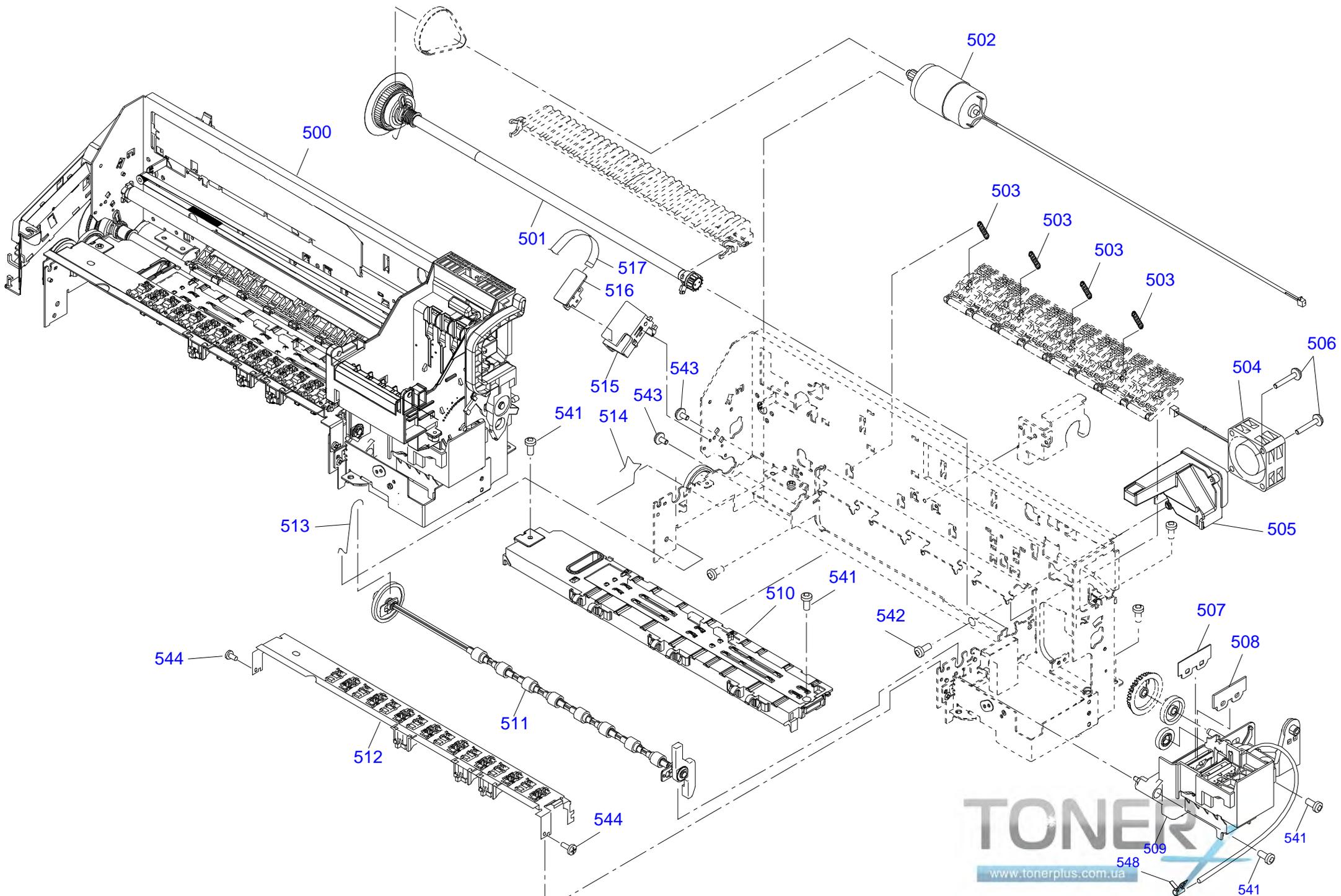
NO.3

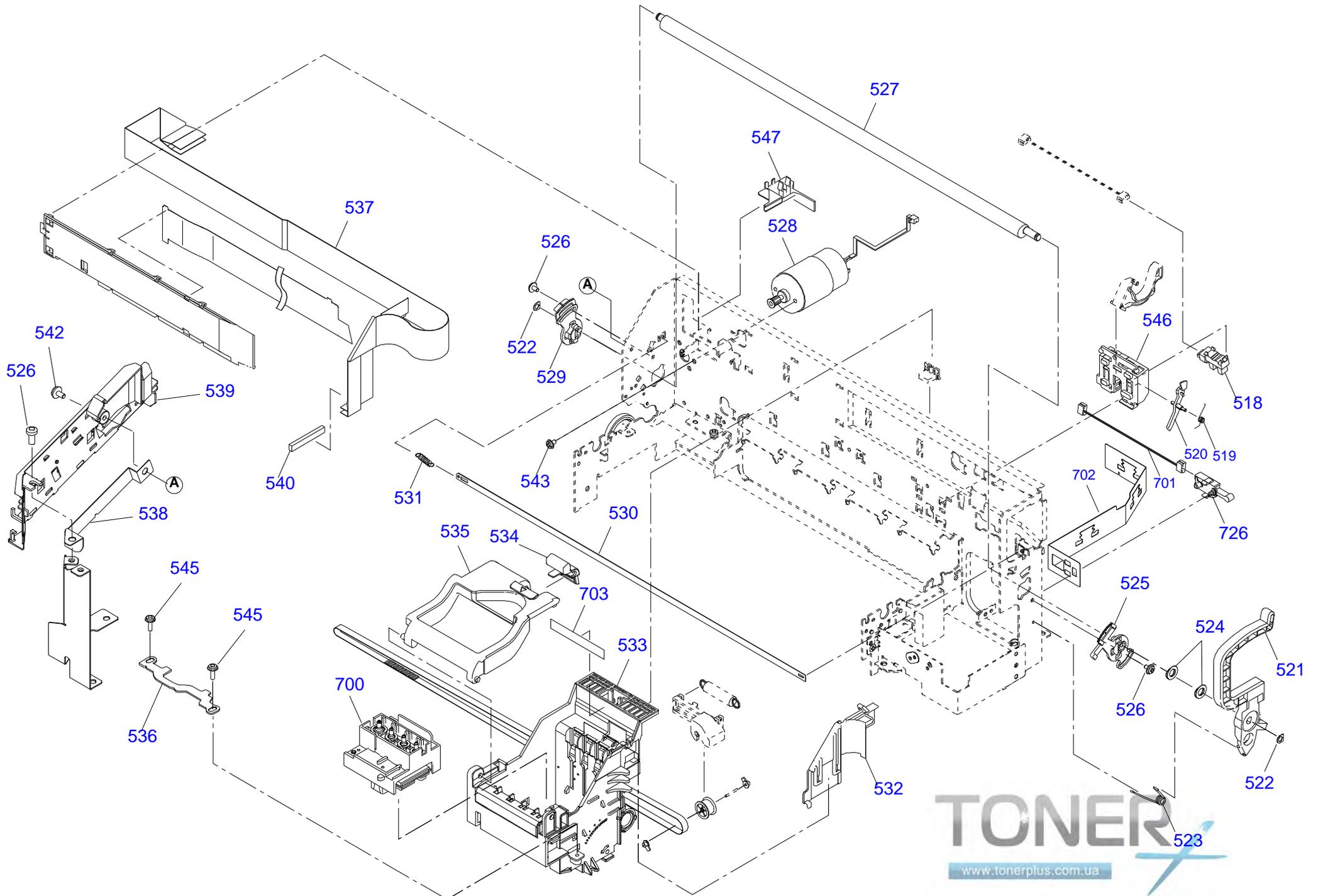
Rev.01 C545-CASE-002

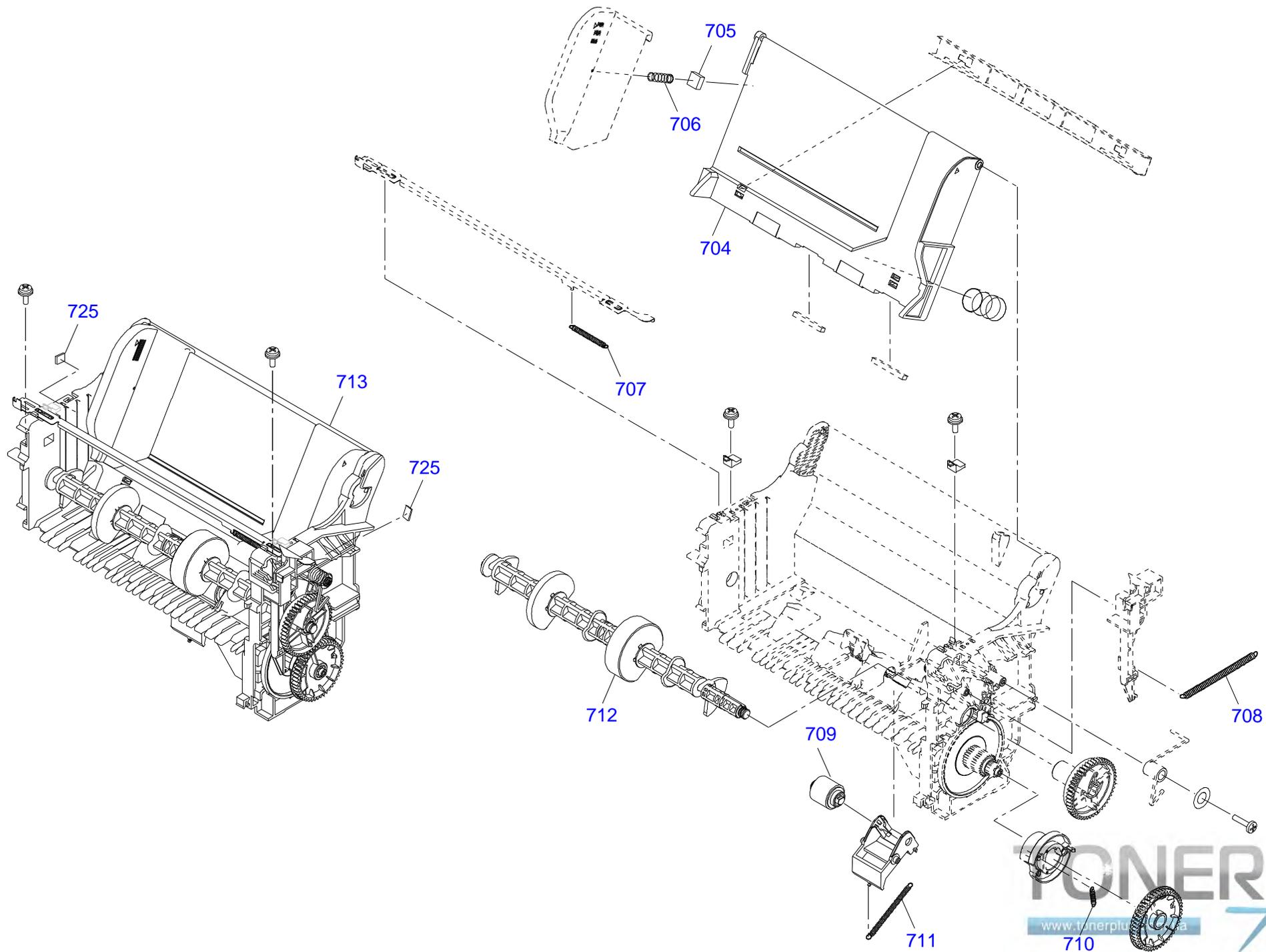
[www.tonerplus.com.ua](http://www.tonerplus.com.ua)







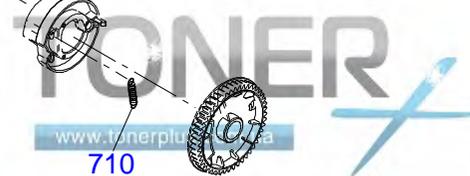


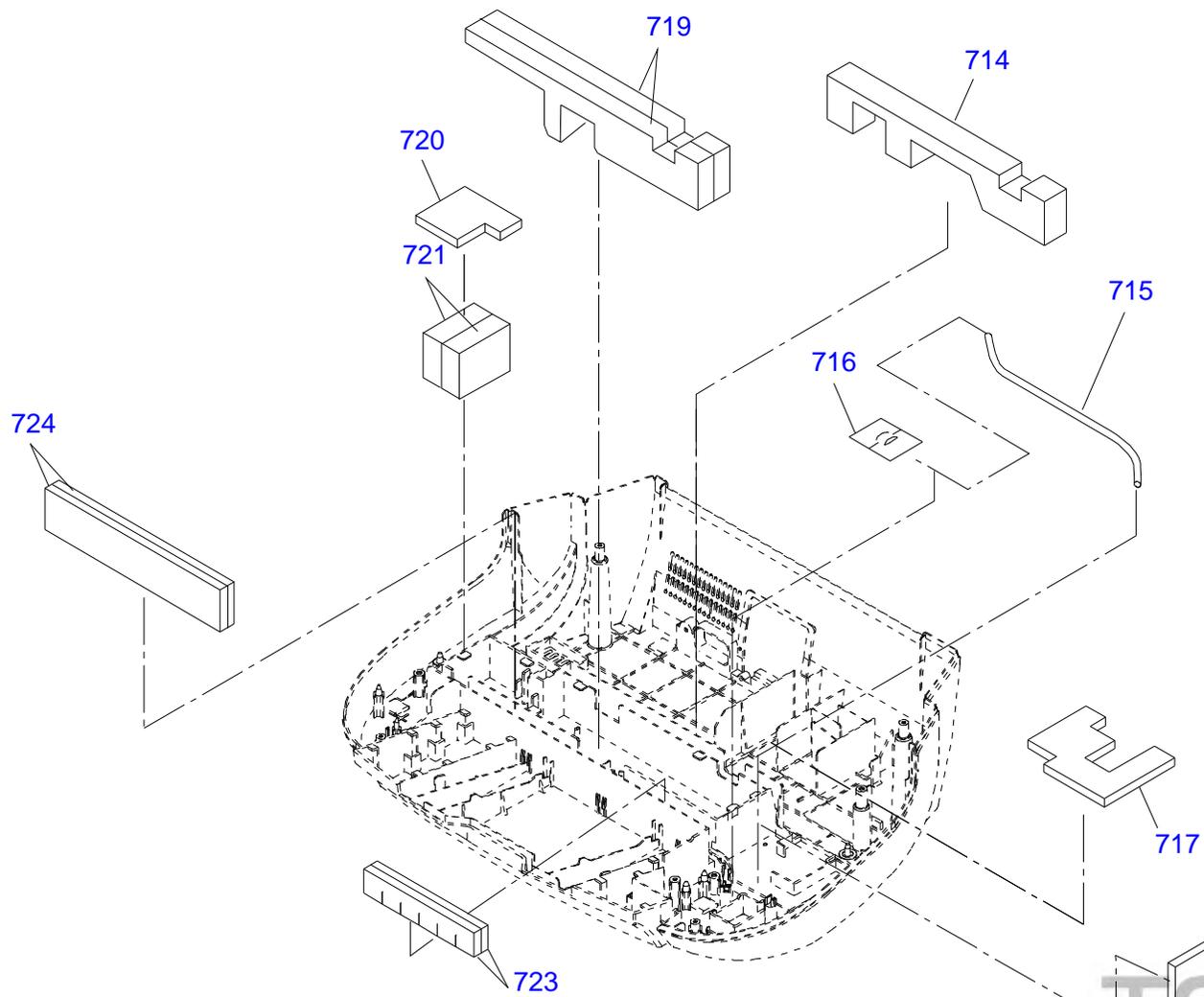


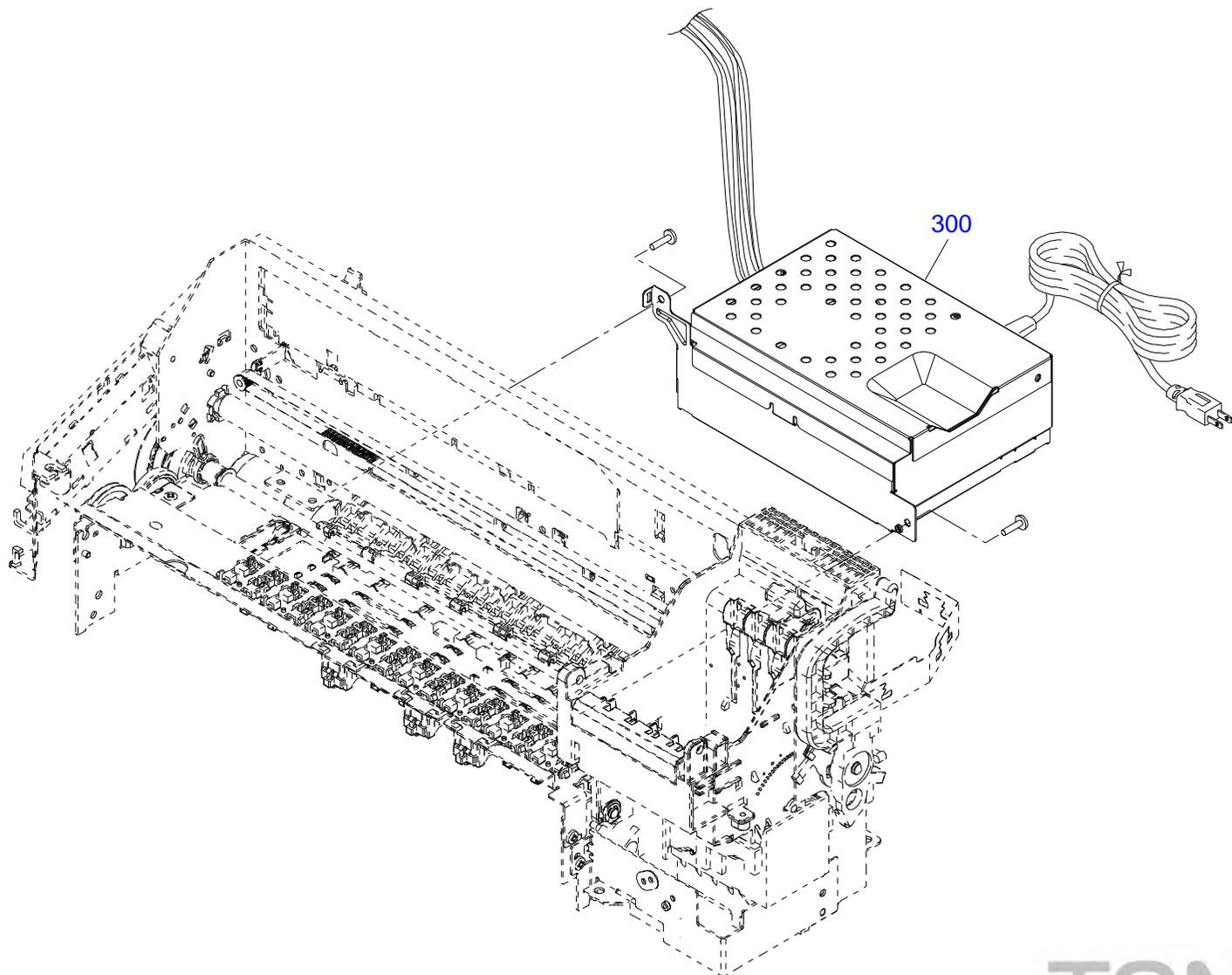
EPSON STYLUS PHOTO CX6400/6300

NO.7

Rev.01 C545-MECH-004







## 7.4 ASP List

Table 7-1. ASP List

Ref No.	Parts Name
100	LOGO PLATE,10X40;G
101	LABEL,HEAD CLEANING;D
102	PAPER SUPPORT;ENN3
103	COVER,ASF;EFS3
104	HOUSING,PANEL;ENM3
105	GROUNDING PLATE,PANEL
106	SHIELD PLATE,PANEL
107	KEY TOP,START;EPG2
108	KEY TOP,TEN KEY;EDG2
109	KEY TOP,MENU;EPG2
110	KEY TOP,MODE;EDG2
111	OPTICAL TUBE,ERROR
112	GUIDE,BUTTON;ENN3
113	COVER,PANEL;EN;CX6300
114	COVER,IN RET;ENN3
115	HOUSING,LOWER;ENN3
116	FOOT
117	STOPPER,PAPER,STACKER;W
118	STACKER,SUPPORT,UPPER;ENN3
119	STACKER;ENN3
120	STACKER,SUPPORT,MIDDLE;ENN3
121	LOCK,SCANNER,EDG2
122	DAMPER,Y 002P-E
123	SHAFT DUMPER;B
124	TORSION SPRING;B
125	HOLDER,DAMPER
126	LOCK,SLOT COVER
127	OPTICAL TUBE,PC SLOT
128	COVER,PC CARD SUPPORT;L;EFS

Table 7-1. ASP List (continued)

Ref No.	Parts Name
129	COVER,PC CARD SUPPORT;R;EFS
130	COVER,PC CADE;B;EFS
131	GUIDE,SHAFT;B;NATURAL
132	PANEL ASSY.,ASP for EAI
134	COVER,MIDDLE;ENN3
135	LEVER OPEN
136	PLATE,COVER,MIDDL
137	HOUSING,MIDDLE;ENM3
138	COVER,FCC
139	C.B.P-TITE SCREW,3X8,F/ZN
140	C.B.P-TITE,3X10,F/ZN
141	C.B.P-TITE,3X10,F/NI
142	C.B.SCREW,3X16,F/NI
143	C.B.P-TITE SCREW,3X20,F/NI
144	COVER,LOWER;ENN3
145	GROUNDING PLATE;C
146	PRESSING PLATE,FFC
147	SHIELD PLATE,M/B,UPPER
148	SHIELD PLATE,M/B;B
149	SHIELD PLATE,M/B
150	C.B.S. SCREW(B300204211)
151	C.B.SCREW(B010303311)
152	C.B.SCREW(B010303511)
155	I/F CABLE
156	COVER,USB CABLE;ENN3
156	COVER,I/F CABLE
157	DOUBLE SIDE TAPE,8X30
200	BOARD ASSY.,MAIN
300	P/S BOARD ASSY.,LATIN 120,ASP
400	POWER CABLE
450	BOARD ASSY.,PANEL
451	HARNESS

Table 7-1. ASP List (continued)

Ref No.	Parts Name
452	FERRITE CORE,SSC-40-12-F
500	PRINTER MECHANISM(ASP)
501	ROLLER,PF ASSY.,ASP
502	MOTOR ASSY.,PF,ASP
503	EXTENTION SPRING,4.07
504	FAN ASSY.,B
505	DUCT,FAN
506	C.B.P-TITE SCREW,3X22,F/ZN
507	CLEANER,HEAD;B,ASP
508	CLEANER,HEAD;B,ASP
509	INK SYSTEM ASSY.,ASP
510	PAPER GUIDE,FRONT ASSY.,ASP
511	ROLLER,EJ ASSY.,ASP
512	EJ ASSY.,ASP;C
513	GROUNDING WIRE,EJ
514	GROUNDING SPRING,ROLLER,PF
515	MOUNTING PLATE,BOARD ASSY.,ENCODER
516	BOARD ASSY.,ENCORDER,PF
517	HARNESS,ENCORDER
518	DETECTOR,HP;F
519	TORSION SPRING,0.28
520	LEVER,DETECTOR,PE
521	LEVER,PG
522	SPACER,4.1X0.5,L/NA
523	TORSION SPRING,67.87
524	LEAF SPRING(B101254590)
525	BUSHING,PARALLER ADJUST,RIGHT
526	C.B.S-TITE(P4),3X6,F/ZN
527	SHAFT,CR,GUIDE
528	MOTOR ASSY.,CR,ASP
529	BUSHING,PARALLER ADJUST,LEFT
530	SCALE,CR

Table 7-1. ASP List (continued)

Ref No.	Parts Name
531	EXTENSION SPRING,2.94
532	HOLDER,HEAD CABLE
533	CARRIAGE ASSY.,ASP
534	LOCK LEVER,INK CARTRIDGE
535	COVER,INK CARTRIDGE
536	FASTNER,HEAD
537	CABLE,HEAD
538	GROUNDING PLATE;D
539	HOLDER,CABLE
540	POROUS PAD,CABLE,HEAD
541	C.B.S. SCREW(B300204211)
542	C.B.P-TITE SCREW,3X8,F/ZN
543	CUP SCREW(B040302311)
544	C.B.S-TITE,3X5,F/ZN(B043700511)
545	C.B.P-TITE(P2)SCREW,3X10,F/ZN
546	HOLDER,DETECTOR,PE
547	CLAMP,CABLE
548	CLAMP,TUBE
700	PRINT HEAD
701	HARNESS,PG
702	GUIDE,HARNESS,PG
703	LABEL,INK CARTRIDGE
704	HOPPER ASSY.,ASP
705	FOOT,B
706	COMPRESSION SPRING,5.61
707	EXTENTION SPRING,1.19
708	EXTENTION SPRING,0.99
709	RETARD ASSY.,ASP
710	EXTENSION SPRING,0.143
711	EXTENTION SPRING,2.25
712	ROLLER,LD ASSY.,ASP;B
713	ASF UNIT,WW,ASP

Table 7-1. ASP List (continued)

Ref No.	Parts Name
714	PORUS PAD,INK EJECT,B-1
715	TUBE,INK EJECT;B
716	POROUS PAD,INK EJECT;H
717	PORUS PAD,INK EJECT,A
718	PROUS PAD,PAPER GUIDE,LOWER
719	PORUS PAD,INK EJECT,E
720	PORUS PAD,INK EJECT,G
721	PORUS PAD,INK EJECT,F
723	PORUS PAD,INK EJECT,D
724	PORUS PAD,INK EJECT,C
725	MINI CLAMP,MN-2
726	DETECTOR,LEAF,B2
800	SCANNER UNIT,US,ASP
801	COVER,DOCUMENT ASSY.,US ASP
802	HINGE,COVER,DOCUMENT,ENN3
803	C.B.P-TITE,3X10,F/NI
804	FFC,CR
805	CIS ASSY.,ASP
806	EARTH WIRE,SCANNER
807	SPRING,CIS
808	CARRIAGE,MAIN
809	HOLDER,CR
810	FERRITE CORE,FPC-19-20-4.5
811	C.B.P-TITE SCREW,3X8,F/ZN
812	CLAMP,BELT
813	SHAFT,CR
814	TIMING BELT
815	WASHER,8.5X2.6X0.5
820	FLANGE,PULLY
821	HOUSING,LOWER,SC,ENN3
822	HINGE ASSY.
823	FERRITE CORE,FPC-16-12

Table 7-1. ASP List (continued)

Ref No.	Parts Name
824	FFC,IDLE
825	BOARD,HP
826	MOTOR ASSY.,ASP
826	MOTOR ASSY.,ASP
827	SHEET,HOUSING,LOWER,SC
828	CUSHION,CR
829	SHEET,COVER,FFC
830	SPACER,FFC
831	DOUBLE SIDE TAPE,9X9
832	C.B.P-TITE,3X10,F/ZN
F2	FUSE
NON FIG	I/C WITHOUT INDIVIDUAL BOX B-S,A/A,AS,4CD00C
NON FIG	I/C WITHOUT INDIVIDUAL BOX M-SS,A/A,AS,4CB84C
NON FIG	I/C WITHOUT INDIVIDUAL BOX Y-SS,A/A,AS,4CB84C
NON FIG	I/C WITHOUT INDIVIDUAL BOX C-SS,A/A,AS,4CB84C

