

8.Adjustment

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## 8.1 Introduction

This chapter provides information on necessary adjustment items and procedures.

### TIP

☞ "10.4 Jigs and Tools" p.10-7

## 8.2 Adjustment Item

This section describes the adjustment items required in part replacement procedures.

When you adjust or replace any of the maintenance parts listed in *Table 8-1 adjustment item list* you must always adjust the printout quality using the self-diagnosis function referring *Table 8-1 adjustment item list p.210*












TABLE 8-1  
ADJUSTMENT ITEM  
LIST

Part Replaced or Adjusted	Adjustment Order	Adjustment Item	Reference
Printer head	1	Head rank input (including initial ink charge)	☞ 6.5.2 "Head Rank Input Menu" p.158 ☞ 6.9.6 "Print Head Endurance (Nozzle Print) Menu" p.196
	2	Head nozzle check	☞ 6.5.3 "Head Nozzle Check Menu" p.160
	3	Repeatability adjustment	☞ 0 " Repeatability (Bi-Directional Printing) Adjustment Menu" p.168
	4	Reset of head unit life counter	☞ 6.8.1 "Parameter Initialization Menu" p.183
	1	Voltage input (no need for initial ink charge)	☞ 6.5.2 "Head Rank Input Menu" p.158
Main board assembly	2	Head nozzle check	☞ 6.5.3 "Head Nozzle Check Menu" p.160
	3	Head slant check (horizontal)	☞ 6.5.4 "Head Slant Check Menu 1" p.162
	4	Head slant check (vertical)	☞ 6.5.5 "Head Slant Check Menu 2" p.164
	5	Head slant adjustment (horizontal)	☞ 8.4 "Head Alignment Adjustment(Horizontal Height)" p.214

TABLE 8-1  
ADJUSTMENT ITEM  
LIST

Part Replaced or Adjusted				Adjustment Order		Adjustment Item Reference	
CR motor assembly	6	Head slant adjustment (vertical)	ⓘ 8.5 "Head Alignment Adjustment(Slant)" p.216	7	Repeatability adjustment	ⓘ 0 " Repeatability (Bi-Directional Printing) Adjustment Menu" p.168	
	8	Media sensor height adjustment	ⓘ 8.6 "PG Height Adjustment" p.219	7	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
	1	CR belt tension adjustment	ⓘ 8.3 "CR Belt Tension Adjustment" p.213	2	Repeatability adjustment (if required)	ⓘ 0 " Repeatability (Bi-Directional Printing) Adjustment Menu" p.168	
	2	Repeatability adjustment		3	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
	1	PF speed reduction belt tension adjustment	NOT COMPLETE	2	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
PF_ENC assembly	1	PF_ENC assembly mounting position adjustment	NOT COMPLETE	2	PF_ENC inspection	ⓘ 6.4.5 "Encoder Menu" p.149	
	2	PF_ENC inspection		3	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
	1	CR encoder inspection	ⓘ 6.4.5 "Encoder Menu" p.149	2	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
CR Encoder Strip	1	CR encoder inspection		2	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	
	2	Test printing	ⓘ 6.5.11 "Test Printing Menu" p.175	1	CR belt tension adjustment	ⓘ 8.3 "CR Belt Tension Adjustment" p.213	
CR driven pulley	1	CR belt tension adjustment					

TABLE 8-1  
ADJUSTMENT ITEM  
LIST

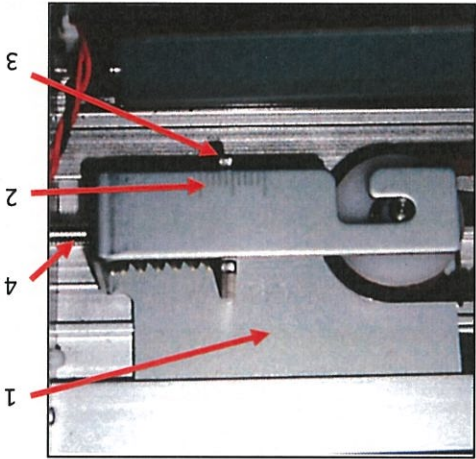
Part Replaced or Adjusted	Adjustment Order	Adjustment Item	Reference	Carriage assembly	
1	CR belt tension adjustment	1  8.3 "CR Belt Tension Adjustment" p.213			
2	CR encoder inspection	1  6.4.5 "Encoder Menu" p.149			
3	Cutter holder assembly mounting position adjustment	Not COMPLETE			
4	Head rank input	1  6.5.2 "Head Rank Input Menu" p.158 1  6.9.6 "Print Head Endurance (Nozzle Print) Menu" p.196			
5	Head nozzle check	1  6.5.3 "Head Nozzle Check Menu" p.160			
6	Head slant check (horizontal)	1  6.5.4 "Head Slant Check Menu 1" p.162			
7	Head slant check (vertical)	1  6.5.5 "Head Slant Check Menu 2" p.164			
8	Head slant adjustment (horizontal)	1  8.4 "Head Alignment Adjustment(Horizontal Height)" p.214			
9	Head slant adjustment (vertical)	1  8.5 "Head Alignment Adjustment(Slant)" p.216			
10	Repeatability adjustment	1  0 "Repeatability (Bi-Directional Printing) Adjustment Menu" p.168			
11	Test printing	1  6.5.11 "Test Printing Menu" p.175			



8.3 CR Belt Tension Adjustment

This section describes the procedure to adjust the tension of the CR belt. When you have removed and installed the CR belt, adjust the CR belt tension.

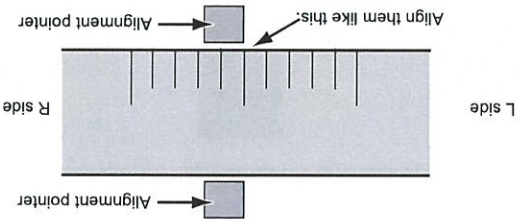
1. Tighten the CR tension mounting shaft, and align the left side (viewed from the front of the printer) of the graduation alignment pointer with the center line of graduations on the driven pulley base.



Part name		No.
Driven pulley base	1	
Driven pulley base graduations	2	
Graduation alignment pointer	3	
CR tension mounting shaft	4	

**CAUTION**

To align the graduation alignment pointer with the center line of driven pulley base, align the left side (viewed from the front of the printer) of the pointer with the center line as shown below.



## 8.4 Head Alignment Adjustment(Horizontal Height)

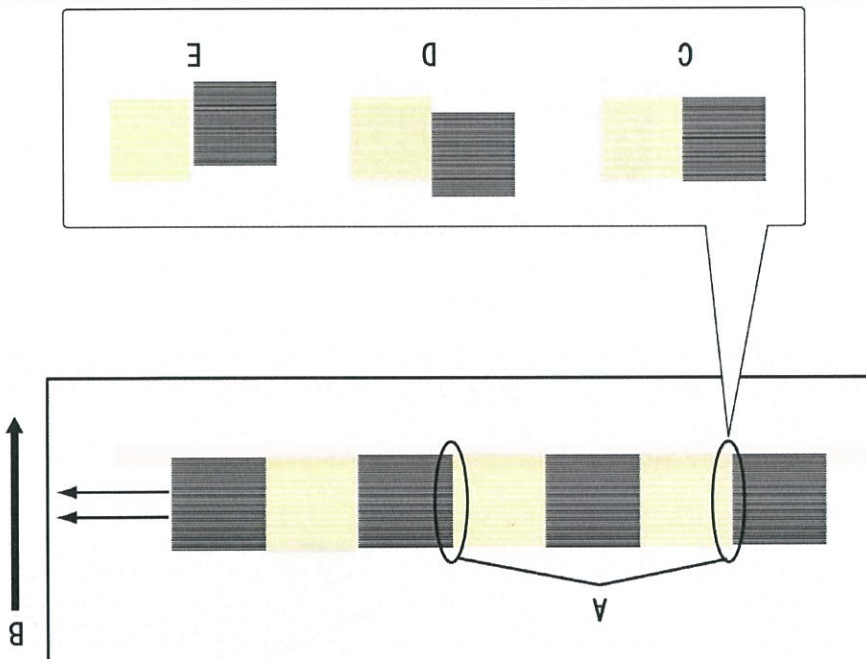
This section describes the procedure to adjust the head slant in horizontal direction. This affects the horizontal origin position of the print.  
When you have removed and installed the head assembly, such as for head assembly replacement, you may adjust the head slant and depth following the steps below.

1. Start the system in self-diagnosis function mode and print the adjustment patterns in "Head Slant Check Menu 1". [R 6.5.4 "Head Slant Check Menu 1" p.162](#)

### TIP

- Use clear film to print the adjustment patterns so as to be able to see all printed patterns (whether white or coloured ink).

- Use a loupe or magnifying glass to identify adjustments required from the adjustment patterns

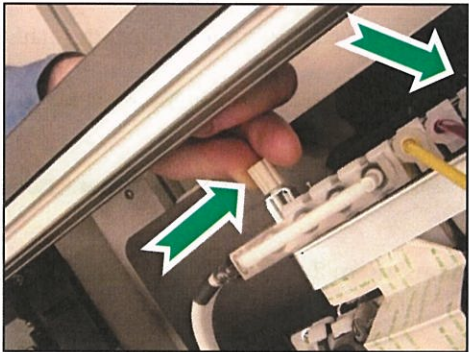


2. Make adjustment based on the printed adjustment patterns.

- A: Check the slant at this point.  
B: Media feed direction  
C: OK

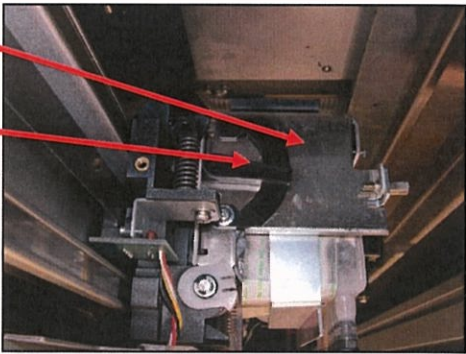
- D: Move the head adjusting cam upward.  
E: Move the head adjusting cam downward.

3. Locate the 2 damper clamp locking screws and loosen them by unscrewing in an anti-clockwise direction.



4. Release the Print Head from the capping station as described in [4.11.2 "Accessing the Capping Station" p.57](#)

5. Rotate the height adjusting cam to adjust head slant.



No.	Part name
1	Head adjusting cam lever
2	Head mounting plate

6. Re-tighten the damper clamp locking screws.
7. Re-cap the print head.
8. Repeat steps 1 through 7 until the correct adjustment is achieved.

## 8.5 Head Alignment Adjustment(Slant)

This section describes the procedure to adjust the head slant in vertical direction.

After operation such as head assembly replacement, adjust the head slant according to the steps below.

### NOTE

A cross point screwdriver is required for this procedure.

1. Start the system in self-diagnosis function mode and print the adjustment patterns in "Head Slant Check Menu 2".

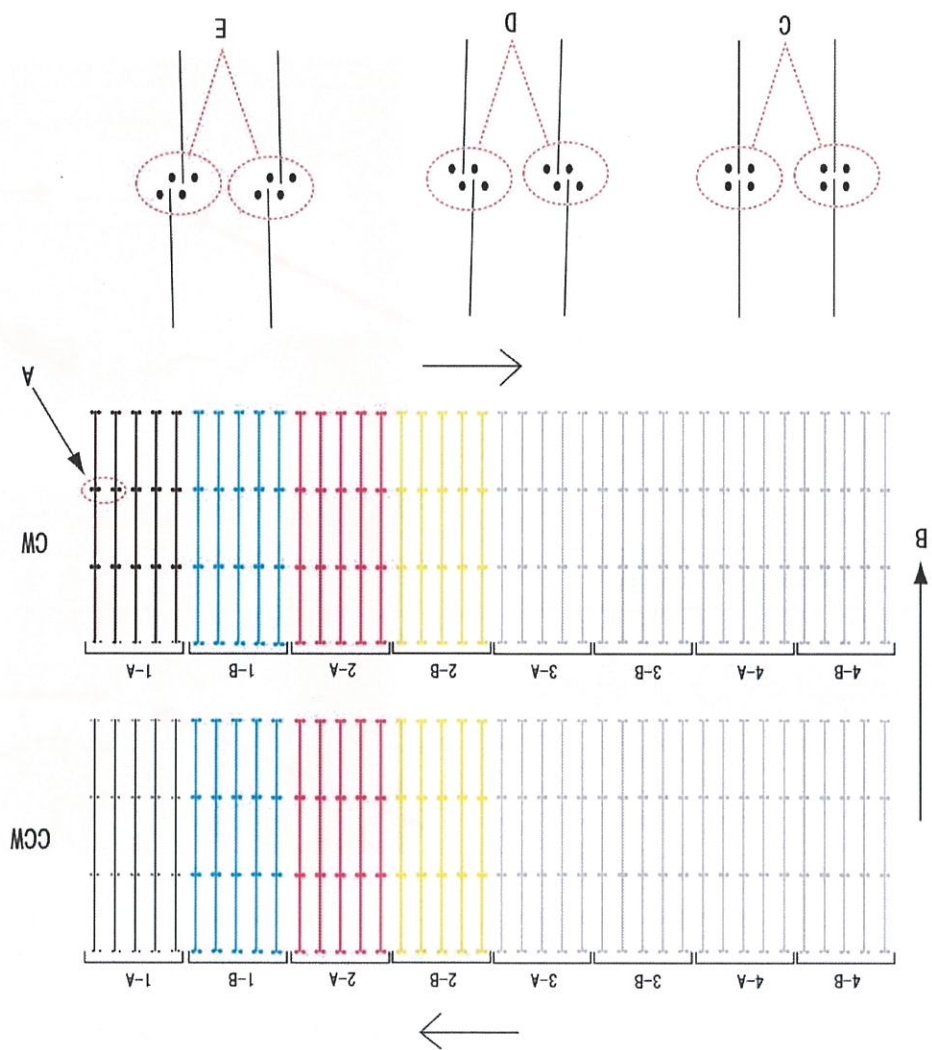
 **6.5.5 "Head Slant Check Menu 2" p.164**

### TIP

- Use clear film to print the adjustment patterns so as to be able to see all printed patterns (whether white or coloured ink).
- Use a loupe or magnifying glass to identify adjustments required from the adjustment patterns

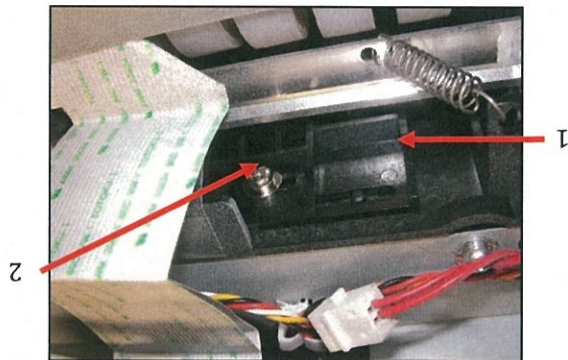
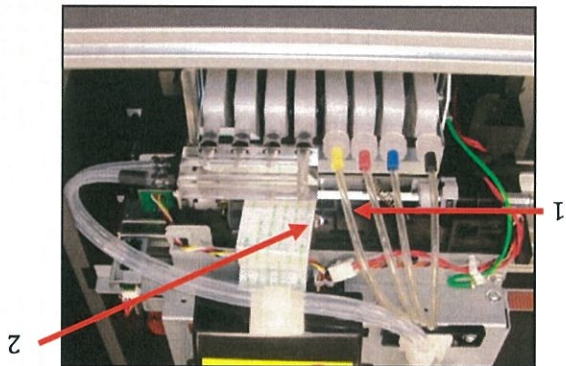
2. Make adjustment based on the printed adjustment patterns.





- A: Check the point to check the vertical slant angle.
- B: Media feed direction
- C: OK
- D: Move the vertical-slant adjusting tab to the right.
- E: Move the vertical-slant adjusting tab to the left.

3. Release the Print Head from the capping station as described in [4.11.2 "Accessing the Capping Station" p.57](#)
4. Loosen the vertical-slant adjusting tab screw and move the tab left and right to adjust the head vertical angle.



5. Re-cap the print head.
6. Repeat steps 1 through 5 until the correct adjustment is achieved.

Part name		No.
Vertical-slant adjusting tab		1
Vertical-slant adjusting tab screw		2

## 8.6 PG Height Adjustment

This section describes the procedure to check the PG height (distance of head face from the platen).

### 8.6.1 Jigs and Tools

The following jigs and tools are required for the PG height check.

- PG gap checking rod ( 2mm diameter stainless steel rod )
- 3mm allen key

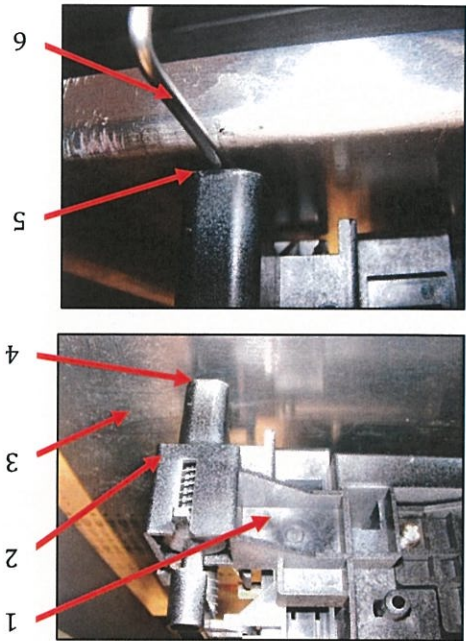
TIP

 11.4 "Jigs and Tools" p.291

### 8.6.2 Adjustment Procedure

Follow the steps below to adjust the platen height.

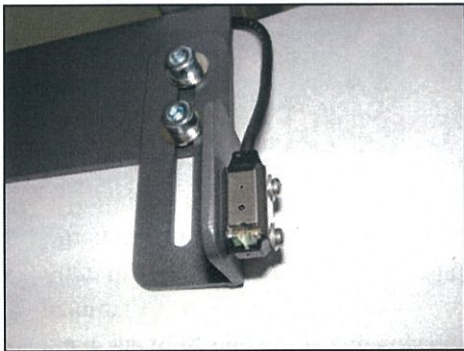
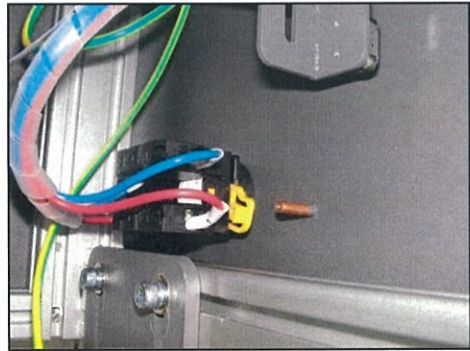
1. Unlock the carriage and slide to the middle of the print area.
2. Place a platen onto the right side and align the edge with the lock holder.
3. Place the long side of the gap checking jig onto the platen pointing towards the right of the printer.
4. Align the rod with the lower face of the lock holder and raise the platen until they just touch.
5. When the platen is moved slowly back and forth the rod should just to rotate.



No.	Part name
1	Carriage assembly left front
2	Lock holder
3	Right side platen
4	Lower face of lock holder
5	Lock holder
6	Gap checking jig



The next step is to check and set the sensor beam height. During normal operation both the Amber and the Green indicator lights on the beam sensor receiver should be on. The beam sensor receiver is located on the upper left inside of the printer mouth. The beam sensor transmitter is located on the upper right inside of the printer mouth.





9.Maintenance

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## 9.1 Introduction

This chapter provides information about the periodical services, part life, lubrication/bonding, and transport.

### WARNING

Before starting any maintenance work, always perform the following operations.

- Turn the printer power OFF.
- Remove the power cable from the power outlet.
- Not doing so may cause electric shock or damage to the electric circuit.
- Unplug the cables connected to the printer.
- Failure to do so could result in damage to the printer.

### CAUTION


- Make sure there is sufficient space around the printer when performing maintenance work.
- When servicing the machinery inside with some covers removed, pay special attention not to be injured by the driving mechanisms.
- Maintenance must be done by more than two person for the following work.
  - When disassembling or reassembling the printer and the optional stand
  - When packing the printer for transportation

## 9.2 Periodical Services

This section describes the periodical services required for this printer. The periodical services ensure stable printing quality of the printer.

Perform periodical inspections according to [Table 9-1 Periodical Inspection Part List](#) and perform cleaning and part replacement as necessary.

### TIP

 Operation manual

 [11.5 "Exploded View" p.294](#)

Part	Timing	Check Point	Action
Media guide L Sub platen front surface	Several times per year	<ul style="list-style-type: none"> <li>Media dust</li> <li>accumulation</li> <li>Foreign objects</li> <li>Damages</li> </ul>	Clean it.
Timing fence (CR encoder detection slit plate)	Several times per year	<ul style="list-style-type: none"> <li>Media dust</li> <li>accumulation</li> <li>Ink mist</li> <li>accumulation</li> <li>Foreign objects</li> <li>Damages</li> </ul>	Clean it. If any damages are found, replace the part.
Rail on the CR guide frame	Several times per year	<ul style="list-style-type: none"> <li>Foreign objects</li> </ul>	Clean it.
Cleaner head (Cleaning wiper)	Several times per year	<ul style="list-style-type: none"> <li>Ink deposits</li> <li>Damages</li> </ul>	Clean it.

TABLE 9-1 PERIODICAL INSPECTION PART LIST

9.3 Part Life Information

This section shows how to check the life of the service parts.  
To determine the life of the service parts, check the maintenance counter from the counter display menu in the maintenance mode2.

TIP

7.3.1 "Counter Display Menu" p.201

Part life information of this printer is shown in the table below.

Part	Life expectancy	Warning	How to restore	Replacement	References
Waste fluid tank	Warning at 900,000 times of counting (equivalent to 900cc)	Full Waste Ink Tank	By pressing [Enter] key while replacing the counter to the new one.	Waste ink box (Replaced by users)	
Cleaning unit	9,000 sheets *1 (Warning at 3,000 times of wiping)	Warning Wiper Life	Counter clear	<ul style="list-style-type: none"><li>• Ink system</li><li>• Cleaner head (Cleaning wiper)</li><li>• Flushing box (Absorber under the maintenance base absorber)</li></ul>	<ul style="list-style-type: none"><li>5.2.3 Removing the Pump/Cap Assembly" p.72</li><li>5.2.1 Replacing the Wiper Blade (Cleaning Wiper)" p.68</li><li>5.2.2 Replacing Flushing Box Assembly" p.71</li></ul>



Part	Life expectancy	Warning	How to restore	Replacement	References
CR motor	Approx. 20,000 sheets (4600,000 passes *2)	E-161 Error Ink Tube	Counter clear	At the first warning: E-161 Error • CR Motor • CR Driven pulley (check the ink tube and the CR cable.) At the next warning: • CR cable besides above	<p>☞ 5.6.1 "CR Motor Assembly" p.110</p> <p>☞ 5.6.4 "Replacing CR Driven Pulley" p.115</p> <p>☞ 5.7.2 "Replacing Ink Tube" p.118</p> <p>☞ 5.7.3 "Replacing CR Tape Wire" p.124</p>
PF Motor	Counted only, not displayed	-	Counter clear	Replace as necessary	☞ NOT COMPLETE
Print head	Counted only, not displayed	-	-	Replace as necessary	☞ 5.3.2 "Replacing the Print Head" p.78

TABLE 9-2 LIST OF PARTS LIFE EXPECTANCY

\* 1 - Printing on A1 sheet at 5% print ratio  
 \* 2 - Continuous printing on A0 sheet with "Plain Paper / Image Speed-Mode"

## 9.4 Lubrication/Bonding

This section covers the lubrication/bonding information.

After disassembling/assembling this printer, always perform necessary lubrication/bonding according to [Table 9-3 lubricant list p. 226](#)

### CAUTION

Only use specified lubricants and greases. The use of unauthorized lubricants and greases may damage the components and shorten the printer life.

Section	Parts	Item	Manufacturer	Type	Exploded View
CR section	Cursor guide	Apply to the front surface.	Mitsubishi	Super multi-dia	
	Pressure shaft bearing	Apply to the peripheral surface.	Dow Corning	EM-60L	
	Pressure shaft stopper	Apply to the pressure lever springs.	Dow Corning	EM-60L	
Head section	Head cable	Affix to each cable (for locating and holding)	Not specified	10mm-width double faced tape	Head Carriage and Pump
Cable guide section	CR cable	Affix to each cable (for locating)	Not specified	10mm-width double faced tape	Carriage Rail assy & Pipes
	Tube guide	Affix to the tube guide (for locating)	Not specified	10mm-width double faced tape	
Others	Screw	Apply to the area screw-locking agent is applied.	Three Bond Co., Ltd.	1401	

TABLE 9-3 LUBRICANT LIST

## 9.5 Transportation of Printer

This section describes how to transport the printer.


Before transporting the printer, you must package it in the same manner as it was delivered using protective materials and packaging materials so that the printer will not be subject to excessive impact and vibrations during the transportation.

Follow the steps below to package the printer.

### (1) Task Before Transportation

1. Remove all ink from the system and flush the ink container with cleaning fluid.
2. Fill containers with cleaning fluid and do ink purge from diagnostic menu.
3. Repeat until all lines are clean and ink free.
4. Turn off the printer during ink purge and empty the waste ink container.
5. Tape the carriage belt together in the centre with low tack tape.
6. Gently push the platen tray fully to the rear of the printer.
7. Tape the platen belt together at the front with low tack tape.
8. Tape the top cover closed with low tack tape.
9. Tape the ink containers and waste ink container in place with low tack tape.
10. Fit the printer with protective materials and place into container.
11. Screw the container lid down.

#### TIP

 If the optional stand is used, separate the printer from the stand

### (2) Task After Transportation

1. Unpack, assemble, and remove all low tack tape and protective materials from the printer.
2. Ensure the correct amounts of ink are poured into the bulk ink containers
3. Plug the printer power cable in to the mains and turn the printer on.
4. Allow the printer to complete ink charge and become ready for operation.
5. Perform a stand alone nozzle test print onto paper with the printer, do head cleans if needed.
6. Install the required printer drivers onto the host PC and connect the printer.
7. Confirm the printer and PC are communicating correctly then install the rip software.

## 10. Troubleshooting

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