

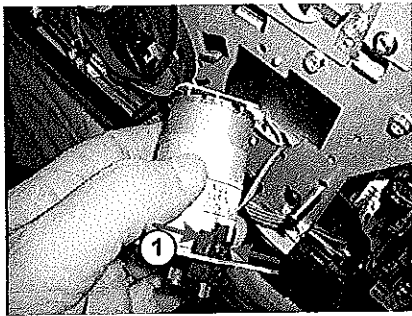
Sensors

3.8.7 JAM FEED DOOR SENSOR

Preparation

Remove:

- Right back cover
- Canopy cover
- Back cover
- Right back cover



j015r076

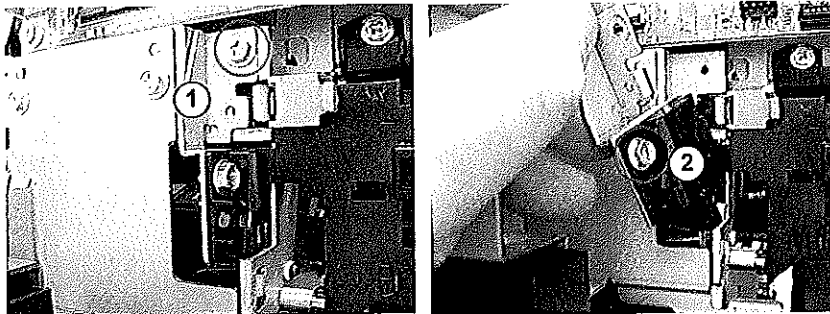
1. Remove the vertical motor plate. (See Vertical Motor).
2. Pinch in the sides of the sensor ① and remove it (⚙️x1).

3.8.8 REAR JAM REMOVAL DOOR SWITCH

Preparation

Remove:

- Jam removal door



j015r077

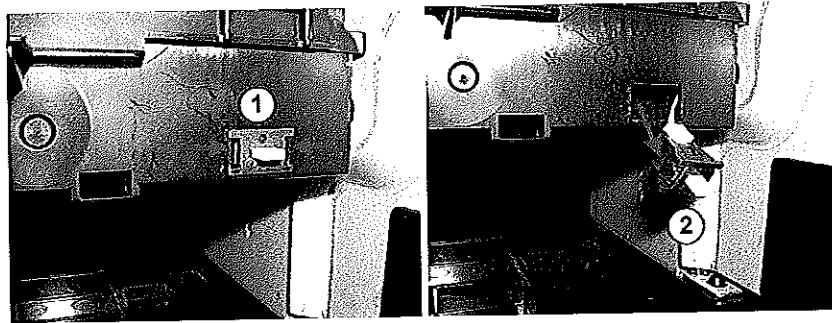
1. Remove the switch bracket ① (⚙️x1).
2. Remove the switch ② (⚙️x1, ⚙️x1).

3.8.9 PAPER CASSETTE SET SWITCH

Preparation

Remove:

- Paper cassette and output tray

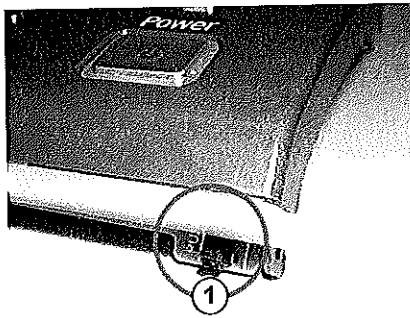


j015r078

Replacement
Adjustment

1. Use the tips of two flat-head screw drivers to depress on the side edges of the sensor ① until it springs free.
2. Pull the sensor out ② and disconnect it (ⓧx1).

3.8.10 RIGHT FRONT DOOR SWITCH



j015r079

The right front door switch ① is permanently attached to the operation panel PCB. This switch and the operation panel must be replaced together. See Right Front Cover and Operation Panel.

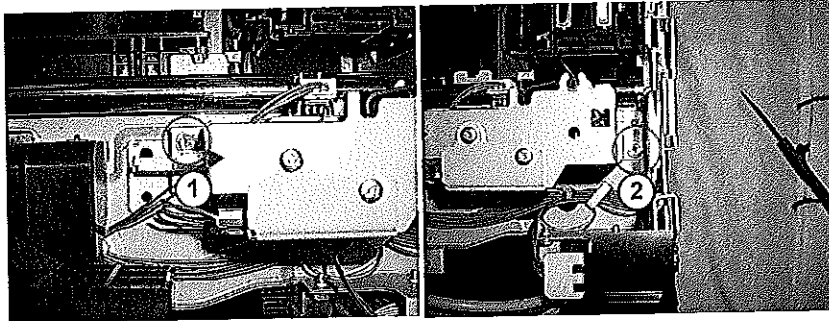
Air Release Solenoid

3.9 AIR RELEASE SOLENOID

Preparation:

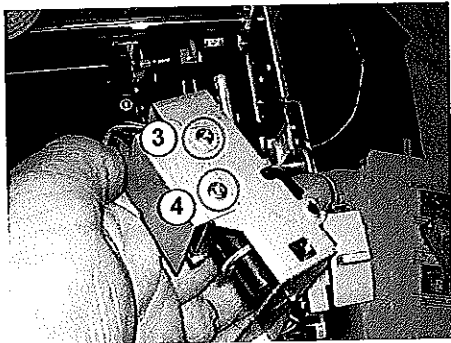
Remove:

- Canopy cover



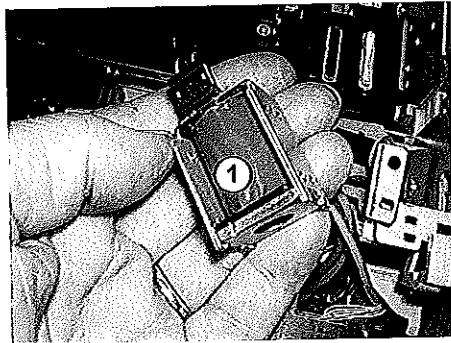
j015r086

1. Remove the bracket screws ①, ② (⌀x2).



j015r080

2. Remove the air release solenoid screws ③, ④ (⌀x2).



j015r081

3. Remove the air release solenoid ① (⌀x1).

3.10 CLEANING PROCEDURES

The responsibility of the service technician is limited because this machine is adjusted for optimum performance at the factory before it is shipped.

Return the printer to the repair center or replace the machine if a serious problem occurs.

There are no parts that require scheduled maintenance or replacement.

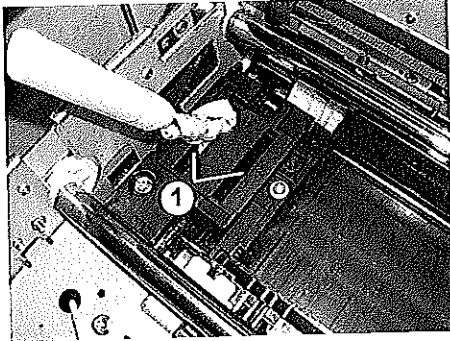
However, the service technician should do the procedures described in this section when a service call is requested.

Description	At Service Call (or When Necessary)
External Covers	Damp cloth.
Feed Roller	Damp cloth. Release the feed clutch lock. Rotate the roller freely as you clean it.
Friction Pad	Damp cloth. This is the cork friction pad on the front edge of the standard paper cassette (Tray 1).
Printer Operation, Print Quality	Print a Nozzle Check Pattern and check the results. Clean the print heads if necessary. For more, see "Image Adjustment" "3. Replacement and Adjustment."
Ink Collector Unit	A message on the printer operation panel prompts you to replace the ink collector unit after it has become full. For more, see "3. Replacement and Adjustment."
Flushing Unit Gate	Dry cloth. Always remove the ink that has hardened around the flushing gate slots when you replace the ink collector unit. To scrape away hardened ink, you may need to use a small screwdriver
Maintenance unit	Damp cloth (use water). Always use a tightly wrapped damp cloth to remove the ink that has hardened around the suction cap and wiper blade when you replace the ink collector unit.

Replacement
Adjustment

Cleaning Procedures

3.10.1 FLUSHING GATE CLEANING



j015r082

Dry ink flakes that collect around the flushing gate can cause streaking in printouts.

Preparation:

Remove:

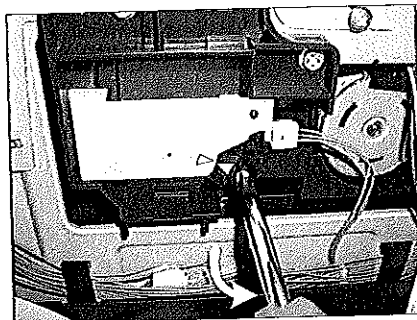
- Canopy cover
1. Wrap the tip of a screwdriver or other tool with a piece of soft cloth.
 2. While pushing the lever ① to the left, use the tip of the screwdriver to remove ink that has hardened inside the slits of the flushing gate.
 3. Use a damp cloth to wipe clean the ink splatter around the flushing gates.

3.10.2 MAINTENANCE UNIT CLEANING

Preparation

Remove:

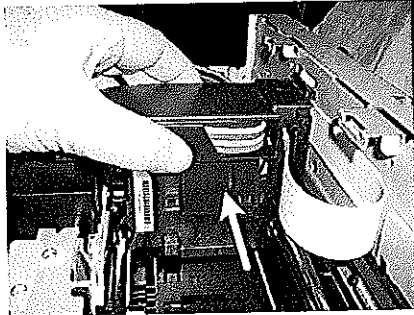
- Right back cover



j015r041

1. After removing the right back cover, use a plus-screwdriver to align the triangles.

2. Push the envelope selector to the back position.

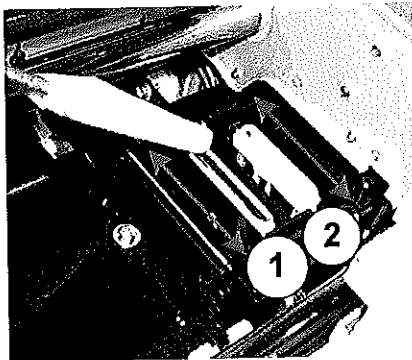


J015r042

3. Push the carriage to the center.
4. Wrap the tip of a screwdriver or similar tool with a piece of finely woven cloth which is slightly damp.

Important

- The damp cloth prevents scratching the suction cup. A scratched suction cup could cause poor print quality. Never use tissue, cotton, or any other type of material to wrap the tip of the screwdriver. Such material can contaminate the maintenance unit with loose fibers.



J015r083



5. Use the wrapped tip of the screwdriver to clean inside and around the right air vent ① and suction cap ②.

Clean the vent and cap carefully to avoid:

- Damaging the movable feeler inside the right air vent ①
- Damaging the fragile lip of the suction cap ②.

Important

- Do not insert the tip of the screwdriver down into either the right air vent or suction cap.

Replacement
Adjustment

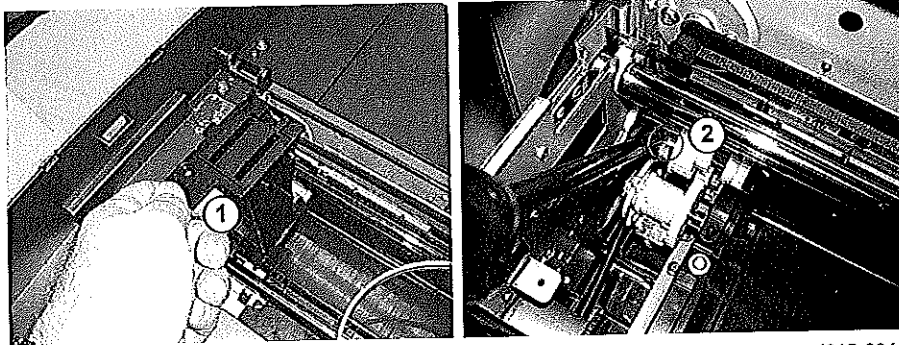
Cleaning Procedures

3.10.3 FEED ROLLER CLEANING

Preparation

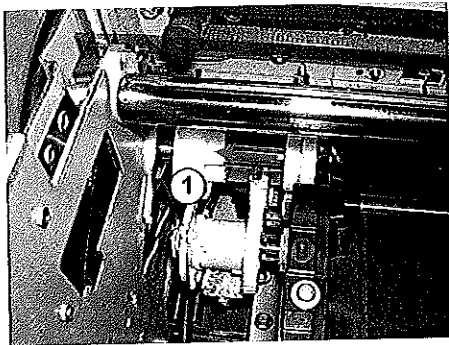
Remove:

- Canopy cover



j015r084

1. Remove the flushing unit ① (1x1).
2. Use the tip of a long flat-head screwdriver to release the Teflon lock tab ② of the transport roller.



j015r085

3. Push the transport roller gear ① to the left. This unlocks the roller and allows it to rotate freely.
4. Rotate the roller and clean it with a dry cloth.

Important

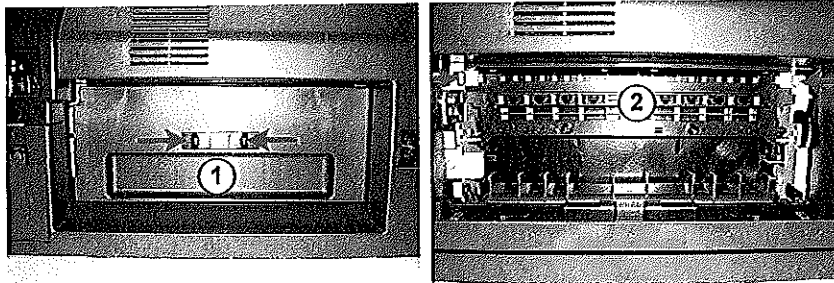
- Lock the roller in place after cleaning.

3.10.4 TRANSPORT BELT CLEANING

Preparation

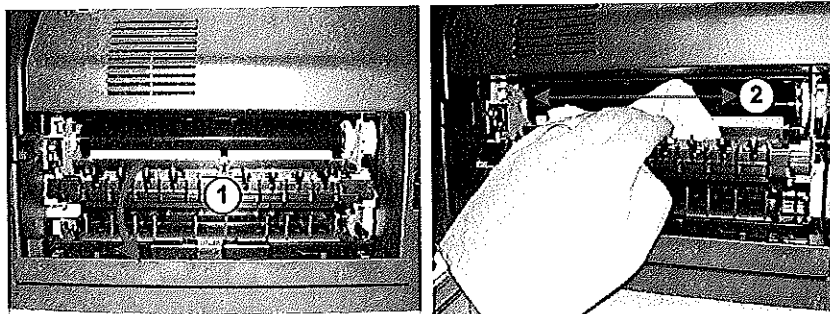
Remove:

- J015: None
- J016: Rear plate or Duplex unit, Multi Bypass Tray



j015r088

1. Release the left and right locks ① and open the rear jam removal door (J015). (The J016 does not have this door but make sure the rear plate, or duplex unit and multi bypass tray have been removed.)
2. Press in the end tabs of the transport roller ②.



j015r089

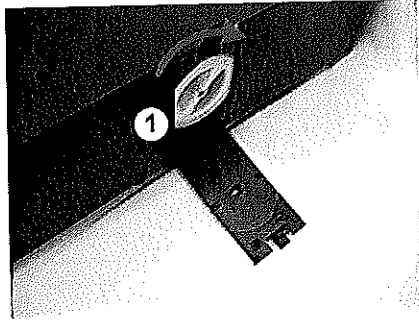
3. Carefully lower the plate ① to expose the surface of the transport roller.
4. Move a clean, slightly damp cloth from side to side to clean the transport belt ②.

Important

- Do not use tissue, cotton or any other material that may leave fibers on the surface of the transport belt.
- Use a slightly damp cloth moistened with clean water. Never use alcohol, or any other solvent to clean the belt.

Replacement
Adjustment

Cleaning Procedures

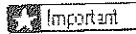


j015r090

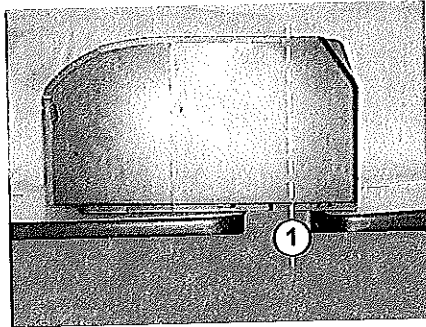
5. Open the jam feed wheel door and rotate the wheel ① far enough to expose the next section of the transport belt.
6. Repeat Steps 4 and 5 until the entire surface of the belt has been wiped clean.

3.10.5 FRICTION PAD CLEANING

The friction pad is located on the bottom of the machine.

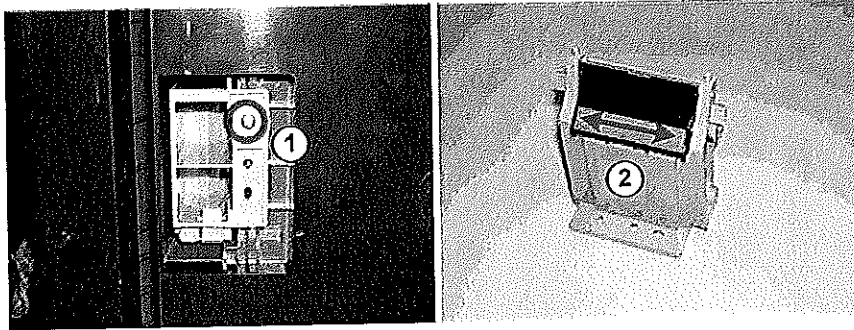


- To avoid ink spillage never set the machine on its side or turn it upside down to remove the friction pad.



j015r086

1. Position the machine ① with the front and back supported by two tables as shown above. (The white line shows the position of the friction pad under the machine.)



J015r087

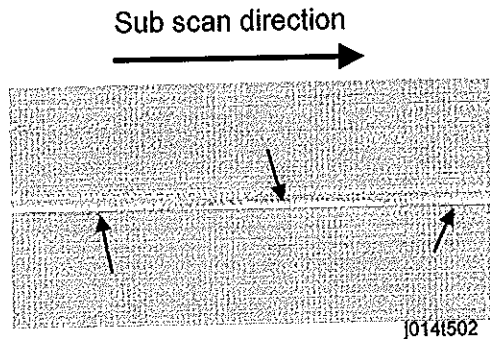
2. Under the machine remove the screw ① and remove the friction pad.
3. Use a damp cloth to clean the surface of the friction pad ②.

3.10.6 HORIZONTAL ENCODER STRIP CLEANING

Clean the horizontal encoder strip if the following conditions occur:

- Vertical white lines on an image
- Double image
- Broken vertical lines
- JAM 14

Sample image of vertical white lines



J014t502

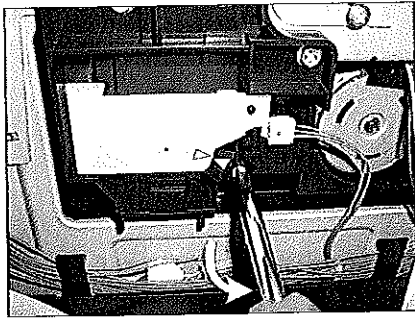
Cleaning procedure

Preparation:

Remove:

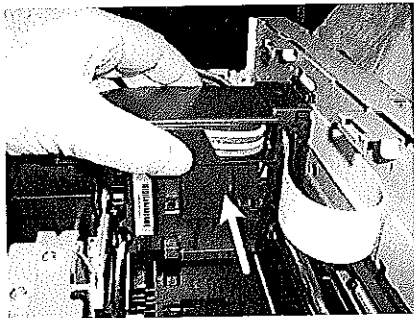
- Right back cover
- Canopy cover

Cleaning Procedures



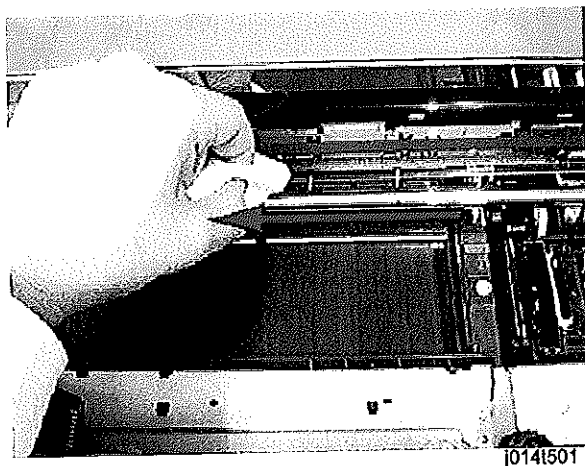
j015r041

1. After removing the right back cover, use a plus-screwdriver to align the triangles.
1. Push the envelope selector to the back position.



j015r042

2. Push the carriage to the center.



3. Dampen a small piece of clean linen cloth with a small amount of alcohol.

Important

- Never use cotton, soft tissue, or any other type of material that could shred and leave fibers on the encoder film strip.

4. Gently wipe the horizontal encoder strip always from **right to left** in one direction.

Important

- To avoid bending the spring plate on the left end of the encoder strip, always wipe the strip from **right to left**. The horizontal encoder strip is fragile. Never apply excessive tension to the horizontal encoder strip when cleaning it.

5. Push the carriage unit to the right with your hand.
6. Repeat the procedure to clean the left side of the encoder strip.
7. Push the carriage unit to the left again, and then turn on the machine.
8. Confirm that the machine is in standby mode and ready to operate.

Important

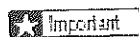
- Switch on the printer immediately after cleaning to ensure that the carriage returns to the right side of the machine and caps the print heads. If this is not done immediately, the print heads may dry out.

Cleaning Procedures

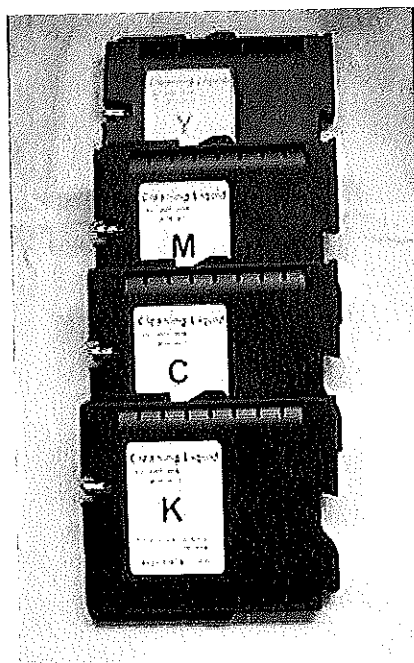
9. Do the "Nozzle Check" after cleaning, and then check the patterns for missing or broken lines.
10. Do "Print Head Cleaning" if the pattern is not satisfactory.
11. Do "Print Head Flushing" if the pattern is not satisfactory, even after three print head cleanings..
12. Do "Print-Head Flushing" and print another Nozzle Check Pattern.
13. If the Nozzle Check Pattern is still not satisfactory after flushing the print heads, replace the horizontal encoder strip.

3.10.7 CLEANING THE PRINT HEADS BEFORE STORAGE

Do this procedure to clean the print heads before storing the machine for one month or longer.



- This procedure should be done at the Repair Center before storing a machine until it can be reused. This procedure is not intended for use at the job site by the customer and it should not be done to correct image problems.



j015r091

1. Procure the four Cleaning Liquid cartridges.
2. Turn the machine on.
1. Push and hold [▼] or [▲] for 3 sec. and release > [#Enter].

SYSTEM Ver.0.51
Service Menu

Replacement
Adjustment

Cleaning Procedures

2. [▼] or [▲]> "Engine Maint.> [#Enter]

SP No. 1000

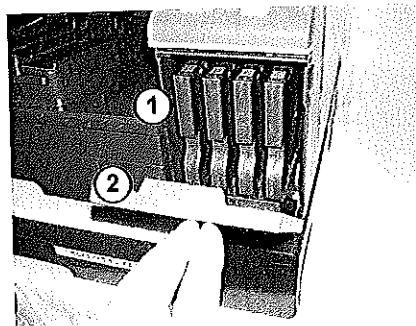
3. [▲] 4 times> "5000"> [Yes] 3 times
4. [▲] 7 times> "5007"> [Yes]

WASHING 5007

5. [Yes]


WASHING EXEC

1. Open the right front door and remove the color ink cartridges (K,C,M,Y).




j015-092

2. Replace the ink cartridges with the Cleaning Liquid cartridges ① and close the right front door ②.
3. Confirm that "WASHING" and "EXEC" are displayed, then push [#Enter].
4. When you see "OK?" push [#Enter].
 - "RUNNING" displays while the cleaning sequence executes.
 - When cleaning is finished, the display returns to "WASHING" and "EXEC"

 Note

- If the "Alert" lamp lights red, this indicates that an error has occurred. At this step you cannot see the error displayed on the machine operation panel.
 - Complete the procedure to return to standby mode, read the number of the error displayed to determine the cause of the error.
5. [Escape] 3 times > "Engine Maint."
 6. [▼] or [▲] > "End" > [#Enter]
 7. The machine switches off.
 8. Remove the cleaning cartridges and store the machine.

 Important

- The initial ink fill counter resets at the end of washing.
- The next time the ink cartridges are installed and the machine is switched on, the initial filling sequence will begin.
- Do not install the ink cartridges and turn the machine on until you are ready to use or service the machine.

Replacement
Adjustment

3.11 FIRMWARE UPDATE

By performing firmware updates, you are allowing your printer to obtain the newest internal control software available that provides improved operation. This machine has three firmware modules. Update them in the following order:

- Printer
- Ethernet Board (Can be updated only if the network interface board is installed.)
- Master Controller

3.11.1 WHAT YOU NEED

The printer must be connected to the PC via a USB cable. These firmware modules cannot be updated over a network.

One of the following operating systems is required:

1. Windows 98 SE
2. Windows ME
3. Windows 2000
4. Windows XP
5. Windows Server 2003
6. Windows Vista

If you are using 3, 4, 5, or 6, you must login as an administrator or as a user with administrator privileges.

The RPCS raster printer driver for the machine must be installed on the computer. The TWAIN driver for this machine must be installed on the computer.

Important Points

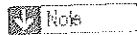
1. Computer Power Options
Before updating the firmware, in the computer power options confirm that "System Standby/System hibernates" is set to "Never." Checking the computer power options is slightly different for each operating system. Refer to the system online help for more information about this procedure.
2. During the Update Procedure
While the update procedure is in progress:
 - Never switch off the printer
 - Never disconnect the USB cable

- Do not start any print job or run an application that uses the printer driver, Status Monitor, or SmartDeviceMonitor
- Do not manually set the computer in system standby or hibernation mode

Before You Begin...

Before you start the update, confirm the following:

- The RPCS raster printer driver is installed on the computer.
- The TWAIN driver is installed on the computer.
- The machine is in standby mode ([Power] key is lit blue).
- No applications are running in the background.
- The printer is connected to the computer with a USB cable.

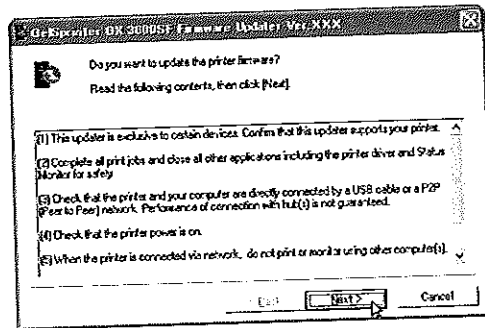


- The following procedure uses Windows XP screenshots.

Replacement Adjustment

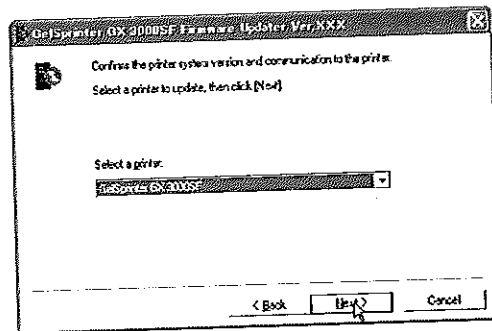
Update Procedure

1. Double-click [GeISprinterGX(Machine No.)_Setup.bat] to start the update.
2. Select [English], and then click [OK].



j014r940a

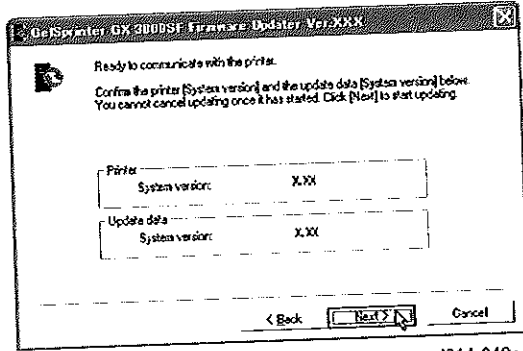
3. Check the displayed details, and then click [Next >].



j014r940b

Firmware Update

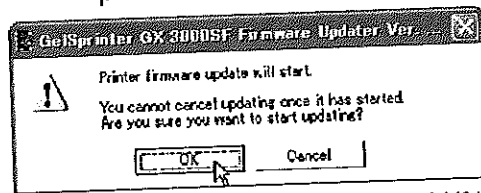
4. Select the printer name, and then click [Next >].



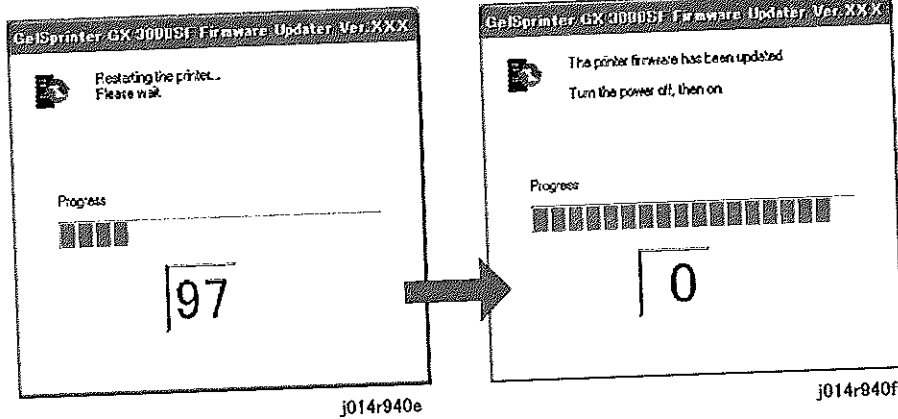
5. Check that the system version for [Update Data] is newer than the system version for [Printer], and then click [Next >].

Important

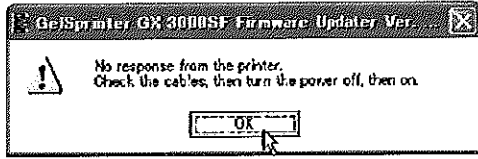
- Once the firmware has been updated, you cannot restore to the previous version.



6. Click [OK] to start the update.

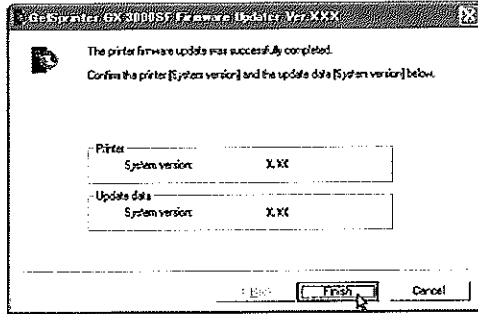


7. Switch the printer off, wait a few seconds, and then turn it back on.



j014r940g

If the screen above appears, switch the printer off and then back on, and then click [OK].



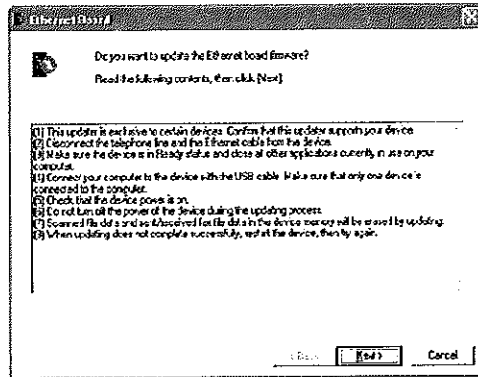
j014r940h

Replacement Adjustment

8. Check the version, and then click [Finish].

Next, the Ethernet Board Firmware Update Wizard starts.

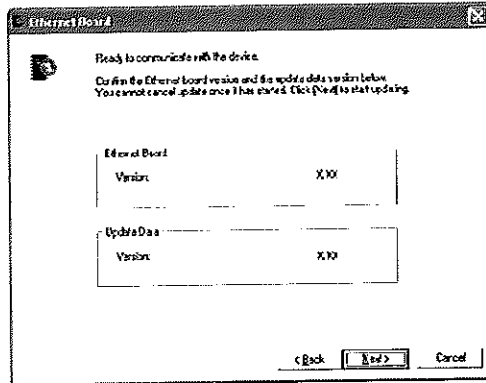
- If the optional network interface board is not installed in the machine, the following message appears: "The Ethernet board is not installed. "
- If this message appears, press [OK] to cancel the Ethernet board firmware update.
- The Master Controller Firmware Update Wizard starts. Go to Step 14.



j014r940i

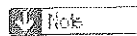
Firmware Update

9. Click [Next >]

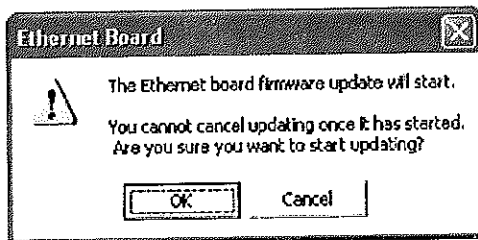


j014r940j

10. Check that the system version for [Update Data] is newer than the system version for [Ethernet Board], and then click [Next >].

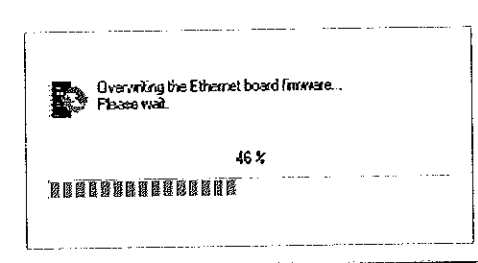


- Once the firmware has been updated, you cannot restore it to the previous version.

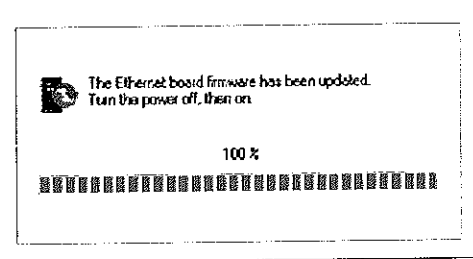


j014r940k

11. Click [OK] to start the update.

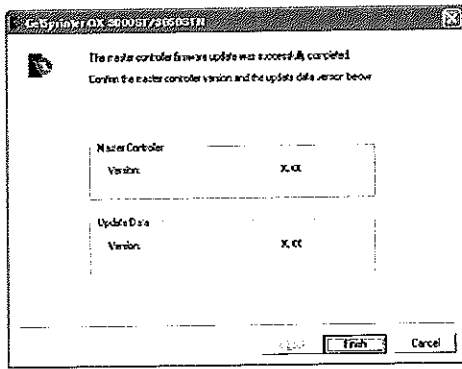


j014r940l



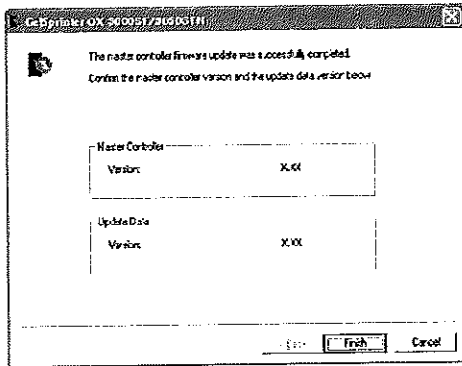
j014r940m

- Switch the printer off, wait a few seconds, and then turn it back on.



j014r940o

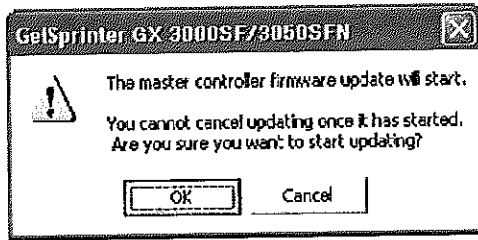
- Check the version, and then click [Finish] to start the master controller firmware update.
- Click [Next >]



j014r940o

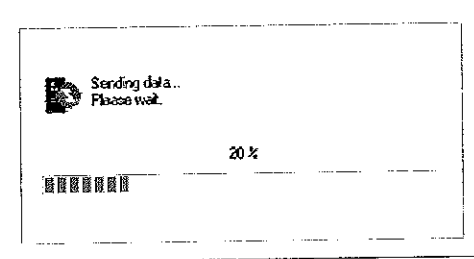
- Check that the system version for [Update Data] is newer than the system version for [Master Controller], and then click [Finish].

Firmware Update

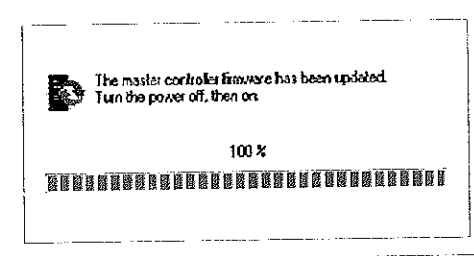


j014r940p

16. Click [OK] to start the update.

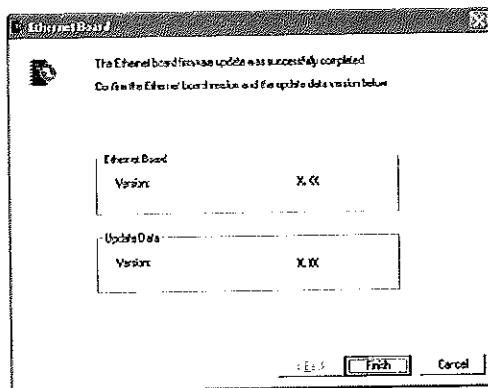


j014r940q



j014r940r

17. Switch the printer off, wait a few seconds, and then turn it back on.



j014r940s

18. Check the version, and then click [Finish].
The update is complete.

SERVICE TABLES

SECTION 5 SERVICE TABLES REVISION HISTORY		
Page	Date	Added/Updated/New
		None

4. TROUBLESHOOTING

4.1 STATUS REPORTS

Four reports can be quickly printed to tell you what you know to need about the machine for setting and servicing. This section shows you how to print these reports:

1. Page Counter
2. System Summary 1 (Machine Configuration)
3. System Summary 2 (Machine Configuration + Error Log + More)
4. Engine Summary Chart

Here is a quick reference list that tells what type information is found in each report.

Item	Report Name	
Bit Switch Settings		3. System Summary 2
Color Usage	1. Page Counter	
Current System Settings	2. System Summary 1	3. System Summary 2
Firmware Version	2. System Summary 1	3. System Summary 2
Ink Collector Counter	2. System Summary 1	3. System Summary 2
Ink Remaining	2. System Summary	3. System Summary 2
Log Data (Counters)		3. System Summary 2
Machine ID	2. System Summary	3. System Summary 2
Page Count	1. Page Counter	
Paper Tray Information	2. System Summary	3. System Summary 2
Printer Log		3. System Summary 2
SC Codes (Most Recent)		3. System Summary 2

Status Reports

Item	Report Name	
SP Code List	3. Engine Summary Chart	
Service Data	4. Service Data List	

4.1.1 PAGE COUNTER

* ***** ***** ***** Page Counter	
Serial No.	J014-00006
Total Full Color	00000000
Total Mono Color	00000000
Total Duplex	00000000

j016t941

Trouble-
shooting

The counter lists the number of prints. The print totals do not include the number of test patterns that have been printed. The counter keeps totals for these items:

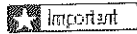
- **Total Full Color.** The total number of sheets printed with in color.
 - **Total Mono Color.** The total number of sheets printed in monochrome.
 - **Total Duplex.** The total number of sheets printed on both sides.
1. [Menu]> "Counter"> [#Enter]> "Show Counter"
 2. [▼] or [▲]> "Print"> [#Enter]>"Press # Key"> [#Enter]

 Note

- A printed single-sided sheet counts as "1."
- A printed double-sided sheet counts as "2."
- The counter limit is 99,999.

4.1.2 SYSTEM SUMMARY 1 (CONFIG. LIST)

The System Summary lists information about the configuration of the machine.



- This report does not show the log data. To see the log data, print System Summary 2.

System Summary	
BRAND NAME	GelSprinter GX 7000
System Reference	
Machine ID	J016-11185
Pages Printed	000020
System Version	xxx
NV Version	xxx
UPD Version	xxx
Connection Device	Tray 2
Connection Equipment	NIC
Printer Language	PCL
Ink Remaining:	
Black	40%
Cyan	40%
Magenta	40%
Yellow	40%

j016t942

To print the Service Summary:

1. Confirm that paper is loaded in the paper tray.
2. [Menu]> "Counter"> [▲] or [▼]> "List/Test Print."
3. [#Enter]> "Config. Page"> [#Enter]> "Processing..."

4.1.3 SYSTEM SUMMARY 2 (LOG DATA)

System Summary	
BRAND NAME	GelSprinter GX 7000
System Reference	
Machine ID	J016-11185
Pages Printed	000020
System Version	xxx
Model	J016-17
Bit Switch	00-00-00-00-20-00-00-00
Printer Log	
Error Log	000,000,000,000,000
Misfeed Log	000,000,000,000,000

j016t942a

Trouble-shooting

1. Press and hold [▲] [▼] for 3 sec.> [#Enter]> "Service Menu"
2. [#Enter]> "Bit Switch"> [▲] or [▼]> "Service Summary"
3. [#Enter]> "Press # to Start"> [#Enter]

4.1.4 ENGINE SUMMARY CHART

The Engine Summary Chart lists all the current SP code settings.

ENGINE SUMMARY CHART		
MODEL	:	IPSIO XXXXXXXX
SER NO	:	JXXX---XXXXXXXX
DUMMY NO	:	JXXX---XXXXXXXX
Firm Ver	:	XXX.XXX.XXX
SENSOR 1	:	XXXXXXXXXXXXXXXX
SENSOR 2	:	XXXXXXXXXXXXXXXX
SENSOR 3	:	XXXXXXXXXXXXXXXX
SP No.	Name	Value
1000	REG:FD:NORM	100
.	.	.
2000	FULLPOS1	23
.	.	.
.	.	.
.	.	.

j014t943

To print the Engine Summary Chart:

1. Confirm that paper is loaded in the paper tray. (The report is about 16 pages long.)
2. To enter the SP mode: [▼] or [▲] for 3 sec.> [#Enter].

SYSTEM Ver.0.51
Service Menu

3. [▼]> "Engine Maint."

SP No.
1000

4. [▲] x 4 times> "5000"> [#Enter]
5. [▲] twice> "5200"> [#Enter] x 3 times

```
PRINT SMC
5200
```

6. [#Enter]

```
PRINT SMC
EXEC
```

7. [#Enter]> "RUNNING"

- Wait for the report to print (it does not start immediately).
- Printing requires about 2 min.

8. [Escape] x 3 times> [▼] or [▲]> "End"> [#Enter]> Machine switches off.

9. [Power] to switch the machine on.

Here is a brief summary of what is listed in the Engine Summary Chart.

Trouble-shooting

Heading	Meaning
MODEL	Number of the Printer Model
SER_NO	Printer Serial Number
DUMMY_NO	
Firm Ver	Version number of the firmware in the printer
SENSOR 1	See details below.
SENSOR 2	
SENSOR 3	
SP No, Name, Value	SP number, name, value of current setting

Sensor 1: Input Sensors (1 of 2)

The status of these sensors are also displayed by SP5400.

Status Reports

No.	Meaning	No.	Meaning
0	Top Cover Switch	8	PFU Relay Sensor
1	Duplexer Set Sensor	9	Paper Sensor (Tray1)
2	Multi Bypass Set Sensor	10	Paper Sensor (Tray2)
3	Carriage Position Sensor	11	Not used
4	PFU Set Sensor	12	Env. Selector Sensor
5	Registration Sensor 1	13	Ink Coll. Tank Sensor
6	Registration Sensor 2	14	Maintenance HP Sensor
7	Trailing Edge Sensor	15	Right Front Door Sensor

Sensor 2: Input Sensors (2 of 2)

The status of these sensors are also displayed by SP5401

No.	Meaning
0	USB Connection Detection
1	GJ10 Option Detection
2	Jam Feed Door Switch
3	Tray 1 Cover
4	Tray 2 Cover

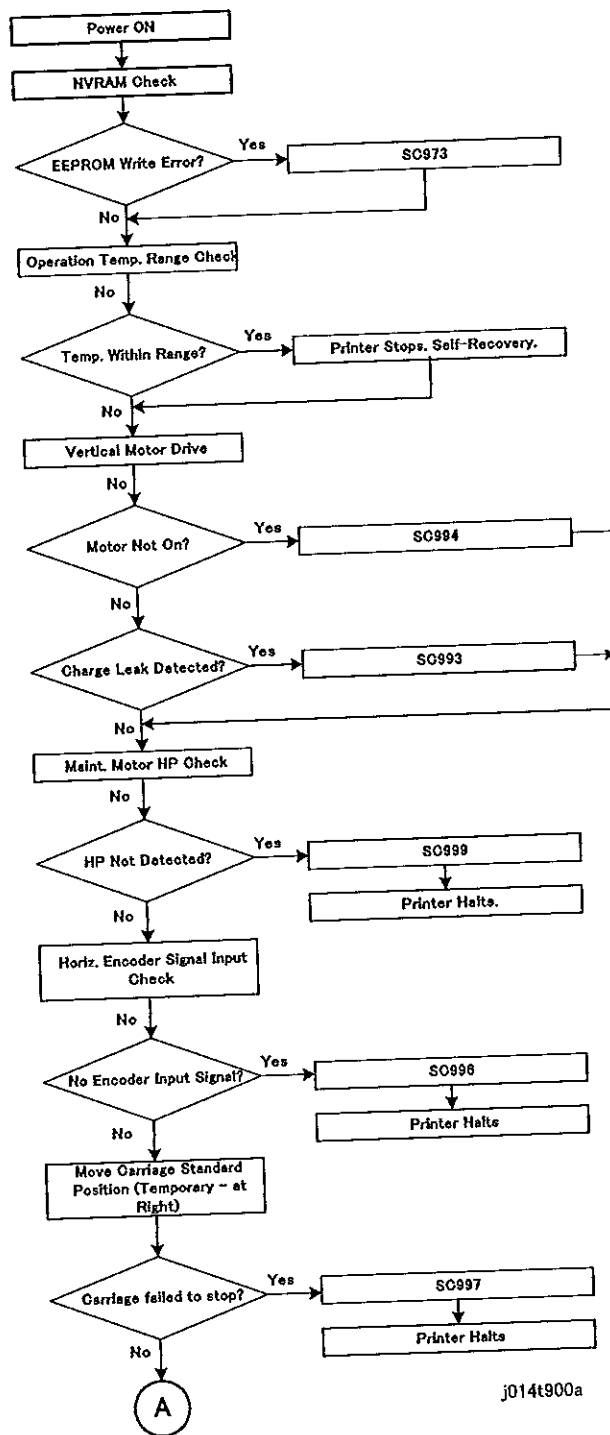
Sensor 3: Ink Cartridge Sensors

The status of these sensors are also displayed by SP5411

No.	Meaning	No.	Meaning
0	K Ink Cartridge Set	8	M Ink Cartridge Refill
1	K Ink Cartridge New	9	Y Ink Cartridge Set
2	K Ink Cartridge Refill	10	Y Ink Cartridge New
3	C Ink Cartridge Set	11	Y Ink Cartridge Refill
4	C Ink Cartridge New	12	Not Used
5	C Ink Cartridge Refill	13	
6	M Ink Cartridge Set	14	
7	M Ink Cartridge New	15	

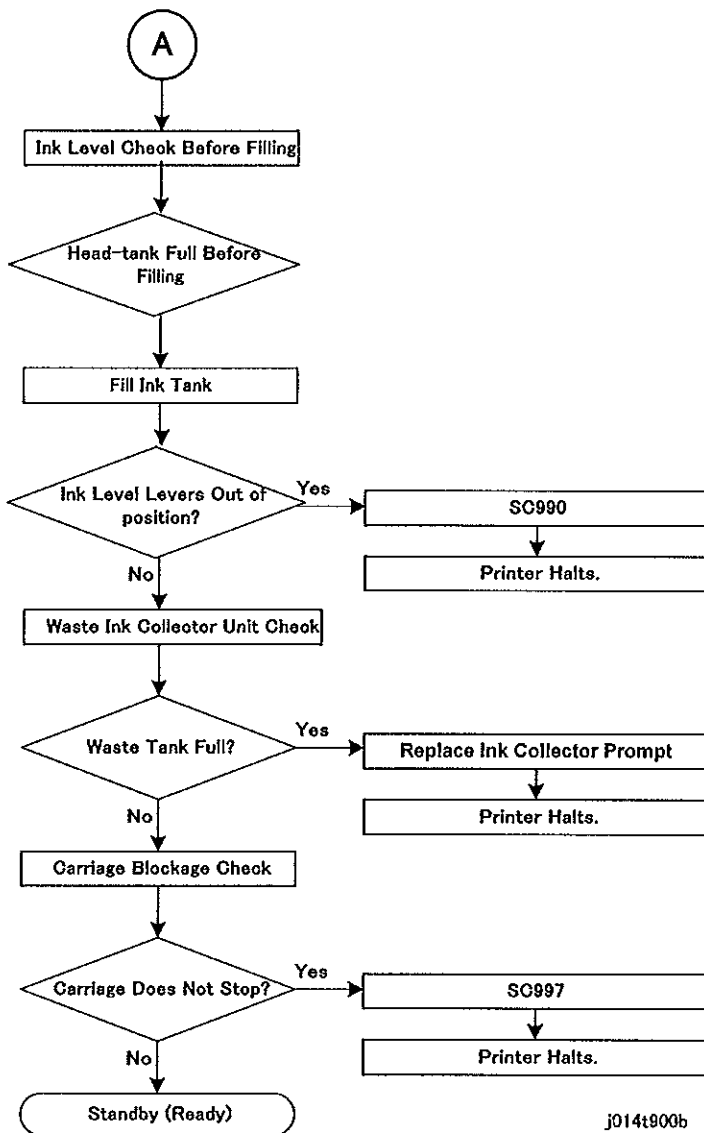
Trouble-
shooting

4.2 SELF-DIAGNOSTIC TEST FLOW



j014t900a

Self-Diagnostic Test Flow



j014t900b

Trouble-shooting

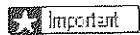
4.3 SC ERROR CODES

4.3.1 SUMMARY OF ERROR LEVELS

Level	Definition	Typical Errors
A	The printer is damaged or disabled, and the printer cannot operate. Even after removing the cause of the problem, turning the printer off and on does not solve the problem.	SC Error Code. This is a Service Call Error.
B	An abnormal condition exists in the printer, and the printer cannot operate until the problem is corrected. Once the operator removes the cause of the problem, turning the printer off and on should restore the printer to normal operation.	Cover open. Paper jams. Ink cartridge out. Ink cartridge missing. Ink cartridge installed incorrectly. Paper size error.
C	The printer can continue to print, but if the problem is not corrected soon the printer will no longer be able to operate. The operator must correct the problem as soon as possible.	Ink near end. Ink collector unit near full.

4.3.2 OUT-OF-RANGE TEMPERATURE ERRORS

	Printer Status at Error	Status After Error
Power ON	Power to the printer turns on, and printer enters and remains in standby mode.	As soon as the temperature of the print heads reaches the operational temperature range, the printer enters the "Ready" mode.
During Printing	Printer halts printing and enters the standby mode.	The printer remains in the "Standby" mode. The operator must switch the printer off and on again to restore normal operation.



Make sure that the room temperature is within the allowed range 10°C to 32°C (50°F to 89.6°F) with RH 15% to 80%. For more details, see Section "1. Installation."

Let one hour pass for the printer to adjust to room temperature before you use it after moving to a new location. This is very important after the printer is moved from a cold location into a warm room.

Trouble-shooting

4.3.3 SC CODE TABLES

Print the System Summary (Config. Page) to see the 5 most recent SC codes.

1. [Menu]> "Counter"
2. [▼] or [▲]> "List/Test Print"> [#Enter]> "Config. Page"> [#Enter]

950		USB Chip ID Detection Error	
		At power on there was a power surge caused by unstable power supply.	▪ CTL board defective
951		USB Undefined Assignment Error	
		An undefined interrupt signal was detected at the ID chip.	▪ CTL board defective
970	A	Flash ROM Erase Error	
		The device erasing the Flash ROM generated an error.	▪ Flash ROM device defective.
971	A	Flash ROM Write Error	
		The device writing to the Flash ROM generated an error.	▪ Flash ROM device defective.
972	A	Flash ROM Verify Error	
		The verify operation after write failed (the data written to the Flash ROM did not match the content of the data in the Flash ROM).	▪ Flash ROM device defective.
973	A	EEPROM Write Error	
		An EEPROM write error was detected at power on, or during a print job.	▪ The EEPROM device is defective.

978	A	Ink Sump Full	
		The ink sump on the left side of the printer is full. Note: A software counter monitors the usage of the ink sump. There are no sensors associated with the ink sump.	<ul style="list-style-type: none"> ▪ Replace the ink sump.
979	A	Ink Supply Timeout	
		This error code is issued if full auto cleaning is done before the bubbles inside the print head are consumed (within 72 hours after power on).	<ul style="list-style-type: none"> ▪ Cycle the machine off/on
984	A	DRV Circuit Temperature Abnormal	
		The temperature of the DRV board (driver board) is out of range.	<ul style="list-style-type: none"> ▪ The temperature of the DRV board (driver board) circuit is not within the specified range: -13°C to 55°C (11.2°F to 131°F)
985	A	Print head Temperature Sensor Abnormal	
		Print head temperature sensor was detected as abnormal when the printer was turned on.	<ul style="list-style-type: none"> ▪ Print head temperature sensor was detected as abnormal when the printer was turned on without the product number registered.
986	A	Humidity Sensor Abnormal	
		The printer detected that the humidity sensor was abnormal.	<ul style="list-style-type: none"> ▪ Sensor connector loose, damaged, or defective. ▪ Sensor defective

Trouble-shooting

SC Error Codes

987	A	Protection During Transport	
		At power on the printer detected that the ink in a cartridge is non-standard ink.	<ul style="list-style-type: none"> ▪ Use only ink cartridges that are designed for use with this printer. ▪ Never use re-filled ink cartridges.
988	A	Ink Supply Error (Air Sensor Abnormal)	
		Printer detected air sensor was abnormal when suction was applied 3 times when the printer was powered on for the first time for ink tank filling or print head refreshing, but no air was detected.	<ul style="list-style-type: none"> ▪ Cycle the printer off and on and try again. ▪ If the problem persists, the print head air sensors may be defective.
990	A	Ink Level Lever Position Error	
		The position of one or more ink level levers could not be detected at initial filling. Correct voltage could not be created for operation of the print head tank, so the print heads cannot operate.	<ul style="list-style-type: none"> ▪ Ink level sensor defective ▪ Horizontal encoder film dirty, installed incorrectly, broken ▪ Maintenance unit dirty, defective ▪ Ink nozzles clogged

992	A	Ink Collector Unit Full Error	
		At power on, the printer detected that the left ink collector unit was full.	<ul style="list-style-type: none"> ▪ Replace the ink collector unit with a new tank. ▪ Never attempt to clean the old tank and reinstall it. ▪ Obey the local laws and guidelines regarding disposal of items such as the ink collector unit.
993	A	High Voltage Leak	
		At power on or during a print job, a leak detection signal was detected. The signal was triggered by the accumulation of condensation or ink spillage onto the transport belt.	<ul style="list-style-type: none"> ▪ This signal is triggered by the HVPS due to an accumulation of condensation or ink spillage onto the transport belt. ▪ Clean the transport belt.
994	A	Vertical Motor Error	
		The vertical encoder input signal was judged to be abnormal when the vertical motor was operating.	<ul style="list-style-type: none"> ▪ Vertical encoder connector loose, broken, or defective. ▪ SENC defective.
996	A	No Input Signal from the Horizontal Encoder	
		No input signal from the horizontal encoder was detected during operation of the horizontal motor.	<ul style="list-style-type: none"> ▪ Horizontal encoder sensor loose, broken, or defective. ▪ Horizontal encoder film broken, disconnected, or installed upside down. ▪ HRB defective

Trouble-shooting

SC Error Codes

997	A	Input Signal from the Horizontal Encoder Abnormal	
		When the carriage moved to the right, the carriage did not stop at the HP. Or, the carriage scan check failed.	<ul style="list-style-type: none"> ▪ Horizontal encoder sensor loose, broken, or defective. ▪ Horizontal encoder film broken, disconnected, or installed upside down. ▪ HRB defective
999	A	Maintenance Stepping Motor Out of Home Position	
		The maintenance motor HP sensor failed to detect the motor at the home position.	<ul style="list-style-type: none"> ▪ Maintenance HP sensor connector loose, broken, or defective ▪ Maintenance motor connector loose, broken, or defective ▪ Movable Feeder connector loose, broken.

4.3.4 JAM CODES

Here is a list of jam codes and what they mean.

Paper Feed Jams

Jam 1	Paper Misfeed in Paper Cassette(Failure to Feed: Tray 1)
Message:	Paper Misfeed: Tray 1
Jam	Paper late jam. The trailing edge sensor failed to detect the trailing edge of a sheet.
Cause:	<ul style="list-style-type: none"> ▪ Obstruction at TE sensor, or obstruction at TE sensor ▪ Bottom plate, bottom plate spring obstructed or damaged. ▪ Paper path blocked by obstruction ▪ Trailing edge sensor feeler obstructed or damaged
Problem Site	<ul style="list-style-type: none"> ▪ Paper cassette (standard) ▪ Trailing edge sensor ▪ Paper feed clutch ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Check Tray 1 (standard paper cassette) for damaged parts and replace them. 2. Check area around trailing edge sensor for obstruction and remove it. 3. Replace paper cassette friction pad. 4. Check paper feed clutch and replace if damaged.



SC Error Codes

Jam 2	Paper Misfeed in PFU (Failure to Feed: Tray 2) J016 Only
Message:	Paper Misfeed: Tray 2
Jam	Paper did not arrive at the relay sensor, so no signal from relay sensor
Cause:	<ul style="list-style-type: none"> ▪ Feeler of relays sensor failed to return to its correct position
Problem Site	<ul style="list-style-type: none"> ▪ Optional PFU (Tray 2) ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Inspect PFU for faulty parts and replace.

Jam 3	Paper Jam in Duplex Unit J016 Only
Message:	Paper Misfeed: Duplex Unit
Jam	Jam occurred when inverting sheet or printing 2nd side of duplex sheet. Paper late jam. Trailing edge sensor failed to detect and signal the trailing edge of the sheet.
Cause:	<ul style="list-style-type: none"> ▪ Duplex unit not operating correctly.
Problem Site	<ul style="list-style-type: none"> ▪ Duplex unit
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Remove and reinstall duplex unit to confirm proper installation. 2. Open duplex unit cover and remove jammed paper, other obstruction. 3. Inspect duplex unit and replace damaged parts.

Jam 4	Paper Feed Jam in Duplex Unit J016 Only
Message:	Paper Misfeed: Guide Plate
Jam	Jam occurred when inverting sheet or printing 2nd side of duplex sheet. Paper lag jam. Trailing edge sensor detected the leading edge of the paper but failed to detect and signal the trailing edge because the paper stopped.
Cause:	<ul style="list-style-type: none"> ▪ Paper jam or other obstruction at the trailing edge sensor ▪ Jammed paper or other obstruction in the paper path ▪ Trailing edge sensor feeler obstructed or damaged
Problem Site	<ul style="list-style-type: none"> ▪ Trailing edge sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace inverter guide plate. 2. Replace trailing edge sensor. 3. Replace CTL board.

Trouble-shooting

SC Error Codes

Jam 5	Paper Misfeed in Standard Paper Cassette (Failure to Feed: Tray 1)
Message:	Paper Misfeed: Guide Plate
Jam	Paper lag jam. The trailing edge sensor detected the leading edge of the paper but failed to detect the trailing edge because the paper stopped.
Cause:	<ul style="list-style-type: none"> ▪ Double-feed ▪ Incorrect paper detection due to dirt or obstruction on the transfer belt ▪ No signal from trailing edge sensor ▪ Trailing edge sensor feeler positioned incorrectly
Problem Site	<ul style="list-style-type: none"> ▪ Transfer belt unit ▪ Trailing edge sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace the inverter guide plate. 2. Replace trailing edge sensor. 3. Replace CTL board.

Jam 6	Multi Feed Bypass Unit Jam J016 Only
Message:	Paper Misfeed: Bypass Tray
Jam	The registration sensor did not detect the leading edge of the paper during paper feed from the bypass tray.
Cause:	<ul style="list-style-type: none"> ▪ The registration sensor did not signal detection of the leading edge. ▪ Obstruction or dirt on the transfer belt interfered with proper detection.
Problem Site	<ul style="list-style-type: none"> ▪ Transfer belt unit ▪ 1st Registration sensor ▪ 2nd Registration sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Clean the transfer belt. 2. Replace 1st, 2nd Registration sensors. 3. Replace Multi Bypass Tray.



SC Error Codes

Jam 7	PFU Paper Transport Jam J016 Only
Message:	Paper Misfeed: Guide Plate
Jam	A paper lag jam occurred when feeding paper from the PFU. The trailing edge sensor detected the leading edge of the paper but not the trailing edge because the paper stopped at the trailing edge sensor.
Cause:	<ul style="list-style-type: none"> ▪ Double-feed ▪ Incorrect paper detection due to dirt or obstruction on the transfer belt ▪ No signal from trailing edge sensor ▪ Trailing edge sensor feeler positioned incorrectly
Problem Site	<ul style="list-style-type: none"> ▪ Transfer belt unit ▪ Trailing edge sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Clean the transport belt. 2. Replace the trailing edge sensor. 3. Replace the PFU.

Jam 8	Multi Bypass Tray Exit Jam J016 Only
Message:	Paper Misfeed: Bypass Tray
Jam	A paper lag jam occurred during paper feed from the Multi Bypass Tray. After the 2nd Registration sensor detected the leading edge of the paper, it failed to detect the trailing edge because the paper stopped.
Cause:	<ul style="list-style-type: none"> ▪ The 2nd Registration sensor failed to signal detection of the trailing edge of the paper.
Problem Site	<ul style="list-style-type: none"> ▪ 2nd Registration sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace 2nd Registration sensor. 2. Replace CTL board.

SC Error Codes

Jam 9	Paper Jam from Tray 1 Between TE Sensor and Registration Sensors
Message:	Paper Misfeed: Tray 1
Jam	A paper late jam occurred during paper feed from Tray 1. The registration sensor detected both leading and trailing edges of the paper, but the 1st Registration sensor failed to detect the paper.
Cause:	<ul style="list-style-type: none"> ▪ Registration sensors failed to signal paper detection.
Problem Site	<ul style="list-style-type: none"> ▪ 1st Registration sensor ▪ 2nd Registration sensor ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace the inverter guide plate. 2. Replace the trailing edge sensor. 3. Replace 1st, 2nd Registration sensors. 4. Replace the CTL board.

Jam 10	Paper Jam from Tray 2 Between TE Sensor and Registration Sensors
Message:	Paper Misfeed: Tray 2
Jam	A paper late jam occurred during paper feed from Tray 2. The registration sensor detected both leading and trailing edges of the paper, but the 1st Registration sensor failed to detect the paper.
Cause:	<ul style="list-style-type: none"> ▪ Registration sensors failed to signal paper detection.
Problem Site	<ul style="list-style-type: none"> ▪ 1st Registration sensor ▪ 2nd Registration sensor ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace the inverter guide plate. 2. Replace the trailing edge sensor. 3. Replace 1st, 2nd Registration sensors. 4. Replace the CTL board.

Trouble-shooting

SC Error Codes

Jam 11	Duplex Paper Jam Between TE Sensor and Registration Sensors J016 Only
Message:	Paper Misfeed: Inverter Guide Plate
Jam	A paper late jam occurred while printing the 2nd side of a duplex print or inverting paper. The trailing edge sensor detected the leading and trailing edge of the paper but the registration sensors failed to detect the paper because it stopped. (The registration sensor did, however, detect the leading edge of the inverted paper from the duplex unit.)
Cause:	<ul style="list-style-type: none"> ▪ The registration sensors failed to signal detection of the paper.
Problem Site	<ul style="list-style-type: none"> ▪ Trailing edge sensor ▪ 1st Registration sensor ▪ 2nd Registration sensor ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Replace the inverter guide plate. 2. Replace the trailing edge sensor. 3. Replace 1st, 2nd Registration sensors. 4. Replace the CTL board.

Jam 12	Initial Jam
Message:	Paper Misfeed: Inverter Guide Plate
Jam	The trailing edge sensor switches ON when the printer is switched on or while printer is initializing.
Cause:	<ul style="list-style-type: none"> ▪ The trailing edge sensor does not change (go OFF). ▪ Paper feed clutch remains ON.
Problem Site	<ul style="list-style-type: none"> ▪ Trailing edge sensor ▪ Paper feed clutch
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Clean the transfer belt. 2. Replace inverter guide plate. 3. Replace trailing edge sensor. 4. Replace 1st Registration sensor. 5. Replace 2nd Registration sensor. 6. Replace CTL board.

Trouble-shooting

SC Error Codes

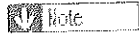
Jam 13	Carriage Jam
Message:	Paper Misfeed: Upper Cover
Jam	The carriage was prevented from reaching its target position within the prescribed time.
Cause:	<ul style="list-style-type: none"> ▪ A piece of paper or other object is obstructing the movement of the carriage. ▪ A piece of paper or other object is obstructing the paper path. ▪ The horizontal film encoder is dirty, slack, buckled, or damaged. ▪ Horizontal feed motor belt is loose or broken.
Problem Site	<ul style="list-style-type: none"> ▪ Horizontal encoder film strip ▪ Horizontal feed motor belt ▪ CTL board
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Clean the horizontal encoder film strip. 2. Inspect the path of the carriage and remove any jammed paper, paper scraps, or other objects. 3. Replace the horizontal encoder film strip. 4. Replace the CTL board.

Jam 15	Abnormal Paper Transport Sequence
Message:	Paper Misfeed: Inverter Guide Plate
Jam	The registration sensors detected the paper before the PFU relay sensor signaled detection of the leading edge.
Cause:	<ul style="list-style-type: none"> ▪ The registration sensor signals did not change.
Problem Site	<ul style="list-style-type: none"> ▪ 1st Registration sensor ▪ 2nd Registration sensor
Action	<p>Perform check, take action in this order:</p> <ol style="list-style-type: none"> 1. Clean the transfer belt. 2. Replace the 1st Registration sensor. 3. Replace the 2nd Registration sensor.



4.4 IMAGE CORRECTION

You can see the image adjustment features on the "Maintenance" menu of the machine operation panel.



- The test prints and adjustments described in this section can also be done with the printer driver. For more details about doing these test prints and adjustments with the printer driver, please refer to the User Guide.

4.4.1 PREPARING FOR TEST PRINTING

1. Make sure A4 size or LTR size paper is loaded in the machine.
2. Make sure the machine is ready to print.

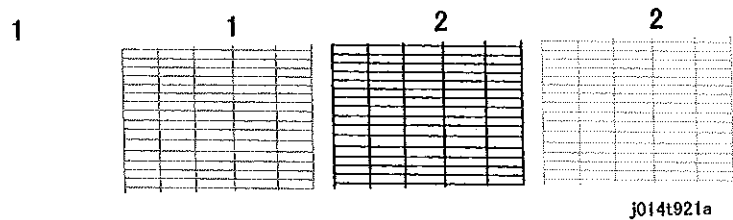
4.4.2 NOZZLE CHECK

Main Nozzle Check Pattern

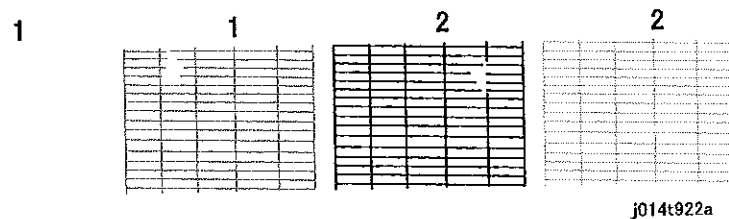
Do this procedure to print the Nozzle Check test pattern. Look at the pattern to determine if the printer is operating properly or not.

1. Push [Menu], select "Maintenance", and push [#Enter].
2. Select "Nozzle Check" and press [#Enter]. The Nozzle Check pattern prints.
3. Examine the Nozzle Check pattern for broken lines or white patches. The first sample below is normal, the second sample shows white patches.

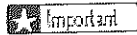
Normal Pattern



Abnormal Pattern

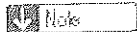


4.4.3 PRINT HEAD CLEANING



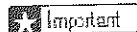
- Print head cleaning consumes ink. Do this procedure only if you see a problem in the Nozzle Check test pattern.

- Check the ink level indicator in the printer driver or the operation panel display to determine if the print cartridge is empty.
- Print a Nozzle Check test pattern.
- Look at the Nozzle Check pattern to determine which nozzles are blocked.



- If one or more color is missing, is extremely faint, or shows broken lines, this tells you where there is a blockage.

- Confirm that the envelope selector is forward.
- [Menu]> "Counter"
- [▼] or [▲]> "Maintenance" > [#Enter]> "Nozzle Check"
- [▼] or [▲] > "Head-cleaning"> > [#Enter]> "All Heads"
- [▼] or [▲]> Select the print heads to be cleaned: "All" (all print heads), "Head 1" (Black/Cyan), "Head 2" (Magenta/Yellow) > [#Enter]
 "**Please Wait**" displays until cleaning is finished.



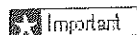
- Do not try to start another procedure and never switch the machine off while head-cleaning is in progress.

- [Escape] > To the previous level.
- Print another Nozzle Check test pattern and check the result.
- If the Nozzle Check test pattern is normal, the procedure is finished.

-or-

If there is still a problem in the Nozzle Check pattern, repeat this procedure and print another Nozzle Check pattern. Do the procedure again if the results are still not satisfactory.

If three consecutive Nozzle Check pattern prints and head-cleanings do not solve the problem, then flush the print heads. (See procedure below.)



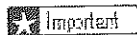
- Head flushing consumes ink. Do not flush the print heads unless three head cleanings have failed to correct the problem.

Trouble-shooting

4.4.4 PRINT HEAD FLUSHING

Flushing the print heads consumes much more ink than print head cleaning. Do not flush the print heads until you have done the print head cleaning procedure (see above) at least three times.

1. Confirm that the envelope selector is forward.
2. [Menu]> "Counter"
3. [▼] or [▲]> "Maintenance" > [#Enter]> "Nozzle Check"
4. [▼] or [▲] > "Head-flushing"> [#Enter]> "All Heads"
5. [▼] or [▲]> Select the print heads to be flushed: "All" (all print heads), "Head 1" (Black/Cyan), "Head 2" (Magenta/Yellow) > [#Enter]
"Please Wait*" displays until flushing is finished. Do not start any other operation until cleaning stops.

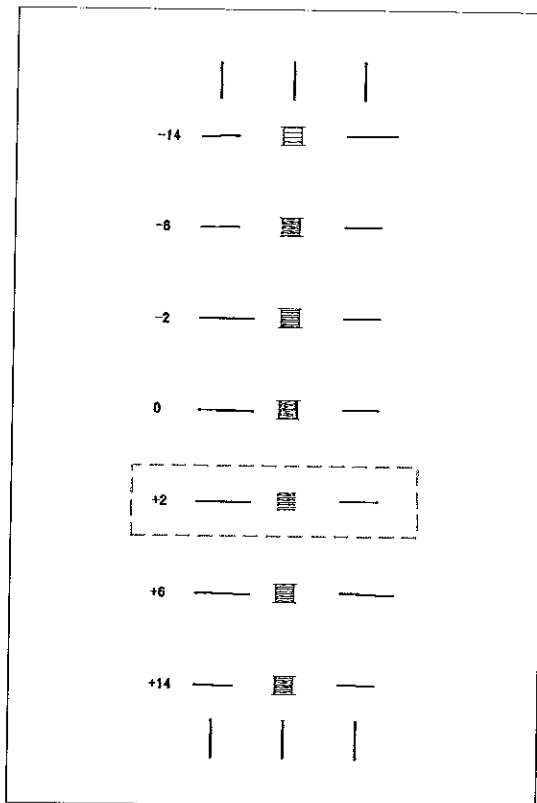


- Do not try to start another procedure and never switch the machine off while head-flushing is in progress.
6. [Escape] > to return to the previous level.
 7. Print another Nozzle Check test pattern and check the result.
 8. If the Nozzle Check test pattern is normal, the procedure is finished.
 - If there is still a problem in the Nozzle Check pattern, allow the machine to remain idle for 10 minutes and repeat the procedure.
 - If the problem persists, allow the machine to remain idle for 8 hours, and then flush the print heads again.
 - If the problem still persists, execute drive cleaning with SP5301. Only the service technician can do this procedure.

4.4.5 ADJUST PAPER FEED

Print the 'Adjust Paper Feed Test Pattern' and do this adjustment if you see broken horizontal lines, patchy images, or white lines printed at regular intervals.

1. [Menu]> "Maintenance"> [#Enter].
2. [▼] or [▲]> "Adj. Paper Feed"> [#Enter]> "Pr. Test Print."
3. [#Enter]. The test pattern prints.
 "**Please Wait**" displays until pattern printing is finished. Do not start any other operation until printing stops.
4. Check the printed numbers and patterns.



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- The adjustment value appears to the left of the lightest gray square with straight horizontal lines on both sides.
- If this number is "+2", for example, then the adjustment value is "+2."
- If horizontal lines beside the gray square are broken, look at where the lines are broken in the opposite direction.

Trouble-shooting

Image Correction

- For example, if the "+2" square is the lightest gray square and the "+6" lines are broken, then the best adjustment value is between "+3" and "+5."
5. [▼]> "Adjustment"> [#Enter].
 6. Press [▲] or [▼] until the number of the pattern that you selected in Step 4 appears.
 7. [#Enter]. This completes the adjustment.
 8. Push [Menu] to leave the menu mode.

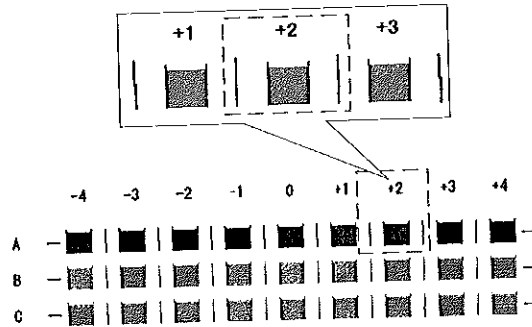
4.4.6 HEAD POSITION

The print head is out of position if you see these:

- Broken vertical lines
- Blurred, smeared or streaked colors

Do the following procedure to correct these problems.

1. [Menu]> "Counter"
2. [▼] or [▲]> "Maintenance"> [#Enter]> "Nozzle Check."
3. [▼] or [▲]> "Head Position"> [#Enter]> "Select "Pr. Test Pattern"
4. [#Enter]> [▼] or [▲]> "Standard", "Quality", or "High Speed"> [#Enter]. The test pattern prints.
 "Please Wait" displays until pattern printing is finished. Do not start any other operation until printing stops.
5. Look at the patterns and determine which is the best.
 - The best pattern is the gray square with straight vertical lines on both sides.
 - The pattern setting is read as a matrix value from the pattern. For example, if the best pattern is in column "+2", line "A", the entry for adjustment will be "A" then "+2"
6. [▼]> "Adjustment"> [#Enter].
7. [▼] or [▲]> Select same setting selected for "Pr. Test Pattern" in Step 4 ("Standard", "Quality", "High Speed")> [#Enter].
8. [▼] or [▲]> Select the letter of the line of the best pattern noted in Step 5> [#Enter].
9. [▼] or [▲]> Select the number of the line of the best pattern noted in Step 5> [#Enter]. This completes the adjustment.
10. Push [Escape] to leave the Menu mode.

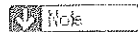


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4.4.7 REGISTRATION

Do this procedure to adjust the print start position. The print start position is the point at the upper left corner of each sheet where printing begins. This procedure can be done for all the paper feed sources: Tray 1 (Standard), Tray 2 (Option), Multi-Bypass Tray (Option).

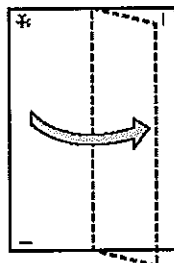
1. [Menu]> "Counter">
2. [▼] or [▲]> "Maintenance"> [#Enter].
3. [▼] or [▲]> "Registration"> [#Enter]> "Pr. Test Sheet"
4. [#Enter]> [▼] or [▲]> "Tray1", "Tray", or "Bypass."



- "Tray 2" and "Bypass" do not appear unless these options have been installed on the J016. (These options are not available for the J015).

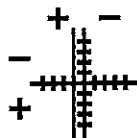
5. [#Enter]> [▼] or [▲]> "Plain Paper" or "Glossy Paper."
6. [#Enter]. The test pattern for Registration prints.

"*Please Wait*" displays until pattern printing is finished. Do not start any other operation until printing stops.




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7. Fold the printed sheet in half lengthwise as shown.
8. Hold the corner of the folded paper in front of a light and look at the cross-pattern overlapping the single vertical line below.
9. Determine the 1st adjustment for the Read Direction.



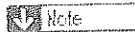
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- The adjustment value in the Read Direction is the difference between the single vertical line and cross vertical line.
 - If the difference is one calibration mark on the "+" side, for example, the adjustment is +1.0.
10. Fold the sheet in half widthwise.
 11. Determine the 2nd adjustment for the Feed Direction. The value read after folding the sheet widthwise, is the adjustment value for the Feed Direction.
 12. [▼] or [▲]> "Adjustment"> [#Enter].
 13. [▼] or [▲]> Select the paper tray> [#Enter].
 14. [▼] or [▲]> Select the paper type> [#Enter].
 15. Enter the adjustment for the Read Direction determined in Step 9 and push [#Enter].
 16. Enter the adjustment for the Feed Direction determined in Step 11 and push [#Enter]. This completes the adjustment.
 17. Push [Menu] to leave the Menu mode.
-  Note
- The "Plain", and "Glossy" are provided because the sensor timing for each medium is different.

4.4.8 DRIVE CLEANING

Follow the procedure below to do drive cleaning. Here are some important points you should know about drive cleaning.

- Drive cleaning should be done only after head cleaning and head flushing fail to clean the print heads successfully.
- Drive cleaning is done by changing a bit switch setting in the SP mode and should always be done by the service technician.
- Drive cleaning forces the piezo element to switch off and on repeatedly to force ink out of the nozzle ports. (The piezo element does not operate during head cleaning or head flushing done with the operator panel or the printer driver.)
- Drive cleaning consumes more ink than either head cleaning or head flushing and requires more time to complete.
- Only one print head at a time can be cleaned with this procedure.



- Before you do this procedure, make sure the print cartridge of the color that is causing problems is not almost empty. Drive cleaning cannot be performed if a print cartridge is almost empty.

1. Push and hold [▼] or [▲] for 3 sec. and release> [#Enter].

SYSTEM Ver.0.51
Service Mode

2. [▼]> "Engine Maint."

SP No.
1000

3. [▲] 4 times> "5000"> [Yes]
4. [▲] 3 times> "5300"> [Yes]> [Yes]
5. [▲] 1 time> "5301"> [Yes]

```
ENGINE SW1
5301
```

6. [Yes]

```
ENG SW1 00001001
Bit0      -
```

7. Set Bit1 to "1"

- [▲] to move the cursor to Bit1 (2nd position from right)> [Yes]
- [▲] to toggle the setting to "1"> [Yes].

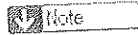
```
ENG SW1 00001011
Bit0      -
```

8. [No] 3 times> [▼] or [▲]> "End"> [Yes]> Machine switches off.
9. [Power] to switch the machine on.
10. Confirm that the envelope selector is forward.
11. [Menu]> "Counter"
12. [▼] or [▲]> "Maintenance" > "Nozzle Check?"
13. [▼] or [▲] > "Head-flushing"> [#Enter]> "All Heads"
14. [▼] or [▲]> Select the print heads to be flushed: "All" (all print heads), "Head 1" (Black/Cyan), "Head 2" (Magenta/Yellow)" > [#Enter]
 "**Please Wait**" displays until flushing is finished. Do not start any other operation until cleaning stops.

Image Correction

15. [Menu]> Standby

- The print head is flushed while the piezo element is rapidly switched on and off.
- Once this operation is completed, Bit 1 resets to "0" automatically.
- If you need to do this procedure again for another print head, you must repeat this procedure and set Bit 1 to "1" again in the SP mode.



Note

- Drive cleaning cannot be performed if the ink tank of the selected print head is almost empty.

SERVICE TABLES

SECTION 5 SERVICE TABLES REVISION HISTORY		
Page	Date	Added/Updated/New
6 ~ 8	10/05/2010	Gratuitous ARP

5. SERVICE TABLES

5.1 BEFORE YOU BEGIN

There are two service modes for this machine:

- **Service Mode.** This mode is menu driven and includes important items for some adjustments as well as other important functions such as displaying the firmware version number, clearing the memory, printing reports, and so on.
- **Engine Maintenance (SP) Mode.** Consists of SP codes SP1000 to SP7532. These are printer engine SP adjustments, primarily but not exclusively used by designers for machine adjustments.

5.1.1 SERVICE MODE

Entering/Exiting Service Mode

To enter Service Mode:

1. Press and hold [▼] [▲] for 3 sec., release > [#Enter] > "Service Menu."
2. [#Enter]> "Bit Switch"
 - Bit Switch
 - Reset Settings
 - Service Summary
 - Version Display
 - Serial No. Edit
 - Counter Setting
 - Fax No. (Not Used)
 - E. Saver Display

To Exit the Service Mode

1. Press [Escape]> "Service Menu."
2. [▼] or [▲]> "End"> [#Enter]> Standby

Before You Begin

5.1.2 ENGINE MAINTENANCE (SP) MODE

Entering/Exiting SP Mode

To enter SP Mode

1. Press and hold [▼] [▲] for 3 sec., release > [#Enter].

SYSTEM Ver. 0.51 Service Menu

2. [▼] or [▲] > "Engine Maint." > [#Enter].
Engine Maint. allows changing the settings of individual SP codes (SP1000 to SP7532. For more about individual SP code settings, refer to the tables in this section. There are no settings available for the following groups:
SP4000, SP6000, SP8000, SP9000.

To exit SP mode

1. At any level in the SP mode press [No] to return to the first level.

SYSTEM Ver. 0.51 Service Menu

2. [▼] or [▲] > "End" > [#Enter].
The machine leaves the SP mode and switches off.
3. Press [Power] to switch the machine on.

Using SP Mode Menus

Entering an Engine SP Code Directly

Do this procedure to enter an SP code directly if you know the number.

1. In the service tables of this section look up the number and name of the SP code to set.

Example: Set SP1164 HUMI:B for -2.5%

Calibrate Humidity Setting for Duplex

Range: [-128 to +127/0/1/0.1%]

2. [▲] and [▼] for 3 sec. > [#Enter] > "Service Menu."

SYSTEM Ver. 0.08
Service Menu

3. [▼] or [▲]> "Engine Maint."> [#Enter]

SP No.
1000

4. "1" is entered at the first digit, press [#Enter] to move the cursor to the 2nd digit.
5. [▲] once> "1100"> [#Enter] to enter "1" at the 2nd digit and move the cursor to the 3rd digit.
6. [▲] x6 times> "1160"> [#Enter] to enter "6" at the 3rd digit and move the cursor to the 4th digit.
7. [▲] x4 times> "1164"> [#Enter].

CHG:HUMI:B
1164

8. [#Enter]

CHG:HUMI:B
_000

 Note

- The first digit is blank. This is the digit for the sign (plus or minus).
 - When this digit is empty, the value is set for plus (+) but the plus sign is not displayed.
9. [▼] or [▲]> "-000"> [#Enter]> Cursor moves to 1st zero

Before You Begin

```
CHG:HUMI:B  
-000
```

10. [▲]> "-000"> To enter the first "0", cursor moves to 2nd "0."
11. [#Enter] x2 times> "-020"> [#Enter] To enter "2" at the 2nd zero, cursor moves to 3rd "0."
12. [▲] x5 times> "-025"> [#Enter]

```
CHG:HUMI:B  
-025
```

13. [#Enter] To save the setting.

```
SP No.  
1164
```

14. [Escape]> "Engine Maint."
15. [▼] or [▲]> "End"> [#Enter]> Machine switches off.
16. [Power] to switch the machine on.

5.2 SERVICE MODE

5.2.1 ENTERING SERVICE MODE

1. Press and hold [▼] [▲] for 3 sec., release > [#Enter] > "Service Menu."
2. [#Enter]> "Bit Switch"

These items are available on the Service Menu.

- Bit Switch
- Reset Settings
- Service Summary
- Version Display
- Serial No. Edit
- Counter Setting
- Fax No. (Not Used)
- E. Saver Display

These items are available on the Service Menu.

Bit Switch	Bit switches 1 to 8. (Described in detail below.)
Reset Settings	<ul style="list-style-type: none"> ▪ Initialize System. Clears all SP code settings and restores their default settings. ▪ Clear Counters. Clears all counters.
Service Summary	Prints the Service Summary. The service summary lists information about the current status of the machine. For more details, see Section 4.
Version Display	Displays the version number of the printer engine.
Counter Settings	<ul style="list-style-type: none"> ▪ Counter Display. Switches the counter display on and off. ▪ LevColor Disp. Switches the level counter display on and off. ▪ Coverage Count. Switches the coverage counter on and off. ▪ Double Count. Switches double counting on and off.
	Note: The default setting for all these items is "Off."

5.2.2 BIT SWITCH SETTINGS**⇒ Bit SW 1: Gratuitous ARP**

Bit	Function	Setting		Default	Details
		0	1		
0	Not Used				
1	Not Used				
2	Not Used				
3	Not Used				
4	Not Used				
5	Gratuitous ARP	OFF	ON	0	0: Inactive (Default) 1: Active
6	Not Used				
7	Not Used				

Bit SW 2. Not used. Do not change these settings.

Bit SW 3 Emulation

Bit	Function	Setting		Default	Details
		0	1		
0	Not Used				
1	Not Used				
2	PCL5e/5c	OFF	ON	0	Makes the printer compatible with old HP PCL printer drivers (HP4000, HP8000, etc.)
3	Not Used				

Bit	Function	Setting		Default	Details
		0	1		
4	Not Used				
5	Not Used				
6	Not Used				
7	Not Used				

Bit SW 4. Not used. Do not change these settings.

Bit SW 5. Functions Common to All Models

Bit	Function	Setting		Default	Details
		0	1		
0	Not Used				
1	Counter menu display for charge on printer use, printing enabled after coverage counted up.	OFF	ON	0	This is a GW specification. 0: Does not print. 1: Prints
2	Error skip.	All	PPC only	0	Switches error skip on/off 0: Errors skipped regardless of paper size, paper type. 1: Error skipped only for PPC.
3	Not Used				
4	Not Used				
5	Counter Display	OFF	ON	0	Switches the counter display on/off.

Bit	Function	Setting		Default	Details
		0	1		
					0: Counter not displayed. 1: Counter is displayed
6	Color Level Display	OFF	ON	0	Switches the color lever display on/off. 0: Color level not displayed 1: Color level displays
7	Repair Information	OFF	ON	0	Displays whether the machine has been repaired. 0: Machine not repaired 1: Machine repaired This bit should be set to "1" after repair so the CE can determine whether machine has been previously repaired.

Bit SW 6. Enable Functions for Individual Printer Models

Bit	Function	Setting		Details
		0	1	
0	Flushing Mist Prevention	OFF	ON	This switch determines whether the machine waits for a while before printing in low temperature (15°C or less). OFF: No waiting ON: Waiting until the flushing mist in low temperature goes off.
1	Paper Error Detection	OFF	ON	This switch sets whether the paper error detection executes. OFF: No detection ON: Paper error detection
2	Double-Count	OFF	ON	This switch sets whether the double-count counter is printed out in the system summary. OFF: No printing ON: Printing
3	Not Used			
4	Not Used			
5	Not Used			
6	USB Serial Signal	0	1	Determines how the USB signal is fixed. 0: Serial signal is set with the value in NVRAM. 1: USB serial signal fixed at "0" (value in NVRAM is not changed).
7	Hidden Functions	0	1	Determines whether hidden functions (hidden paper sizes A5

Service Mode

Bit	Function	Setting		Details
		0	1	
				SEF, B6 SEF) are displayed. 0: No A5 SEF, B6 SEF display 1: A5 SEF, B6 SEF displayed

Bit SW 7. Enable Functions for Individual Printer Models**Bit SW 8: GW Bit Switch**

Bit	Function	Setting		Details
		0	1	
0	Not Used			
1	Design Waveform Switching	OFF	ON	DFU Designates waveform switch 0: For product 1: For design
2	Speed Mode Priority	OFF	ON	
3	Operation Control Mode After Printer Idle	OFF	ON	
4	Maintenance Mode	OFF	ON	
5	Recycled Paper Menu Display	OFF	ON	This switch sets whether the recycled paper charge menu of the operational panel. 0: Not displayed 1: Displayed
6	Charge Setting for Recycled Paper	OFF	ON	This switch sets whether the charge bias is selected for normal paper or recycled paper. 0: Normal paper charge 1: Recycled paper charge
7	Auto Clean for High Paper Volume User	OFF	ON	

5.3 SP MODE SERVICE TABLES

5.3.1 SP TABLE KEY

Notation	What It Means	
[range/default/step/units]	Example: [-127 to +128/4.5/1/0.1 mm].	
	-127 to +128	Range
	4.5	Default
	1	Screen increments
	0.1 mm	Unit change for every screen increment.

Here is a summary of common terms and abbreviations used in the SP code descriptions.

Term	What It Means
DFU	Denotes "Design or Factory Use." Do not change this value.
DOM	"Domestic" market only (Japan)
EXP	"Export" markets (North America, Europe, Asia)
NA	North America
EUA	Europe/Asia
Sub Scan	This is printing vertically down the length of an SEF (portrait) page.
Main Scan	This is printing horizontally across the width of an SEF (portrait) page.
LEF	Long Edge Feed (paper feeds sideways with the long edge feeding first)

SP Mode Service Tables

Term	What It Means
SEF	Short Edge Feed (paper feeds lengthways with the short edge feeding first)
FA	"Factory Adjusted." The default setting is set at the factory or service center.
LE	Leading Edge
TE	Trailing Edge
LE/TE	Leading Edge/Trailing Edge



5.3.2 GROUP 1000

Main Scan, Sub Scan Registration

1000	REG:FD:NORM:F	Adjust Sub Scan Registration (Normal Paper)
	Use this SP code to adjust writing in the sub scan registration for normal paper. Do this setting when registration does not match the direction of paper feed selected in the user image adjustment menu. [-128 to +127/FA/1/0.1 mm]	
1001	REG:TR1:NORM:F	Adjust Main Scan Registration (Normal Paper: Tray 1)
	Use this SP code to adjust writing in the main scan direction for normal paper loaded in Tray 1. Do this setting when registration does not match the image start position on the user image adjustment menu. [-128 to +127/FA/1/0.1 mm]	
1002	REG:TR2:NORM:F	Adjust Main Scan Registration (Tray 2: Normal Paper: FA)
	Use this SP code to adjust writing in main scan direction for normal paper loaded in Tray 2. Do this setting when registration does not match the image start position on the user image adjustment menu. [-128 to +127/FA/1/0.1 mm]	
1003	REG:MAN:NORM:F	Adjust Main Scan Registration (Bypass: Normal Paper: FA)
	Use this SP code to adjust writing in the main scan direction for normal paper loaded in the bypass tray. Do this setting when registration does not match the image start position on the user image adjustment menu. [-128 to +127/FA/1/0.1 mm]	