Service Manual

Color Jetprinter™ 4079 plus

4079-002

- Table of Contents
- Start Diagnostics
- Safety and Notices
- Trademarks
- Index

LEXMARK™

4079-00X

Second Edition (May, 1997)

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: LEXMARK INTERNATIONAL, INC. PROVIDES THIS PUBLICATION “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions of the publication. Improvements or changes in the products or the programs described in this publication may be made at any time. Publications are not stocked at the address given below; requests for publications should be made to your point of purchase.

Comments may be addressed to Lexmark International, Inc., Department D22A/035-3, 740 New Circle Road NW, Lexington, Kentucky 40550, U.S.A. Lexmark may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Lexmark is a trademark of Lexmark International, Inc., registered in the United States and/or other countries.

Color Jetprinter is a trademark of Lexmark International, Inc.

Other trademarks are the property of their respective owners.

Contents

Notices and Safety Information

Safety Information

- This product is designed, tested and approved to meet strict global safety standards with the use of specific Lexmark components. The safety features of some parts may not always be obvious. Lexmark is not responsible for the use of other replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- There may be an increased risk of electric shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this and take necessary precautions.

Consignes de Sécurité

- Ce produit a été conçu, testé et approuvé pour respecter les normes strictes de sécurité globale lors de l'utilisation de composants Lexmark spécifiques. Les caractéristiques de sécurité de certains éléments ne sont pas toujours évidentes. Lexmark ne peut être tenu responsable de l'utilisation d'autres pièces de rechange.
- Les consignes d'entretien et de réparation de ce produit s'adressent uniquement à un personnel de maintenance qualifié.
- Le démontage et l'entretien de ce produit pouvant présenter certains risques électriques, le personnel d'entretien qualifié devra prendre toutes les précautions nécessaires.

Norme di sicurezza

- Il prodotto è stato progettato, testato e approvato in conformità a severi standard di sicurezza e per l'utilizzo con componenti Lexmark specifici. Le caratteristiche di sicurezza di alcune parti non sempre sono di immediata comprensione. Lexmark non è responsabile per l'utilizzo di parti di ricambio di altri produttori.
- Le informazioni riguardanti la manutenzione di questo prodotto sono indirizzate soltanto al personale di assistenza autorizzato.
- Durante lo smontaggio e la manutenzione di questo prodotto, il rischio di subire scosse elettriche e danni alla persona è più elevato. Il personale di assistenza autorizzato, deve, quindi, adottare le precauzioni necessarie.

Sicherheitshinweise

- Dieses Produkt und die zugehörigen Komponenten wurden entworfen und getestet, um beim Einsatz die weltweit gültigen Sicherheitsanforderungen zu erfüllen. Die sicherheitsrelevanten Funktionen der Bauteile und Optionen sind nicht immer offensichtlich. Sofern Teile eingesetzt werden, die nicht von Lexmark sind, wird von Lexmark keinerlei Verantwortung oder Haftung für dieses Produkt übernommen.
- Die Wartungsinformationen für dieses Produkt sind ausschließlich für die Verwendung durch einen Wartungsfachmann bestimmt.
- Während des Auseinandernehmens und der Wartung des Geräts besteht ein zusätzliches Risiko eines elektrischen Schlags und körperlicher Verletzung. Das zuständige Fachpersonal sollte entsprechende Vorsichtsmaßnahmen treffen.

Pautas de Seguridad

- Este producto se ha diseñado, verificado y aprobado para cumplir los más estrictos estándares de seguridad global usando los componentes específicos de Lexmark. Puede que las características de seguridad de algunas piezas no sean siempre evidentes. Lexmark no se hace responsable del uso de otras piezas de recambio.
- La información sobre el mantenimiento de este producto está dirigida exclusivamente al personal cualificado de mantenimiento.
- Existe mayor riesgo de descarga eléctrica y de daños personales durante el desmontaje y la reparación de la máquina. El personal cualificado debe ser consciente de este peligro y tomar las precauciones necesarias.

Informações de Segurança

- Este produto foi concebido, testado e aprovado para satisfazer os padrões globais de segurança na utilização de componentes específicos da Lexmark. As funções de segurança de alguns dos componentes podem não ser sempre óbvias. A Lexmark não é responsável pela utilização de outros componentes de substituição.
- As informações de segurança relativas a este produto destinam-se a profissionais destes serviços e não devem ser utilizadas por outras pessoas.
- Risco de choques eléctricos e ferimentos graves durante a desmontagem e manutenção deste produto. Os profissionais destes serviços devem estar avisados deste facto e tomar os cuidados necessários.

Informació de Seguretat

- Aquest producte està dissenyat, comprovat i aprovat per tal d'acomplir les estrictes normes de seguretat globals amb la utililització de components específics de Lexmark. Les característiques de seguretat d'algunes peces pot ser que no sempre siguin òbvies. Lexmark no es responsabilitza de l'us d'altres peces de recanvi.
- La informació pel manteniment d’aquest producte està orientada exclusivament a professionals i no està destinada a ningú que no ho sigui.
- El risc de xoc elèctric i de danys personals pot augmentar durant el procés de desmuntatge i de servei d’aquest producte. El personal professional ha d’estar-ne assabentat i prendre les mesures convenients.

Chinese Safety Information

安全资讯

- 本产品使用特有的 Lexmark 元件，并依照严格的世界安全标准来设计、测试及验证。有些零件的安全功能可能不明显。对於其他厂牌更换零件的使用， Lexmark 概不负责。
- 本产品的维护资讯仅供专业服务人员使用，而非针对一般使用者。
- 本产品在拆卸、维修的时候，遭受电击或人员受伤的危险性会增高，专业服务人员对这点必须有所了解，并采取必要的预防措施。

Korean Safety Information

안전 사항

- 본 제품은 특정 Lexmark 구성 요소의 사용에 있어 엄격한 세계 안전 표준에 맞도록 설계, 테스트되었으며 승인받았습니다. 일부 부품의 안전성은 항상 보장되지 않습니다. Lexmark는 다른 교체 부품의 사용에 대한 책임을 지지 않습니다.

- 본 제품에 관한 유지 보수 설명서는 전문 서비스 기술자용으로 작성된 것이므로 비 전문가는 사용할 수 없습니다.

- 본 제품을 해체하거나 정비할 경우 전기적인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고 필요한 예방 조치를 취하도록 하십시오.

Preface

This service manual is designed to be used by printer repair technicians during servicer training and when repairing a failing printer. The technician should first understand the failing symptom. Then begin at “Start” (page 2-1) in this service manual and follow the steps to diagnose and fix the failure.

This manual is divided into the following chapters:

1. “**General Information**” introduces the printer.
2. “**Diagnostic Information**” includes the procedures that give you step-by-step instructions to isolate the failing FRU.
3. “**Diagnostic Aids**” includes test procedures that are used to diagnose problems and test the machine after repairs have been made.
4. “**Repair Information**” shows how to change the failing FRU and make necessary adjustments.
5. “**Connector Locations**” shows how to find test points and illustrates the paper paths and ink supply system.
6. “**Preventive Maintenance**” includes suggestions for maintaining the printer.
7. “**Parts Catalog**” lists the part numbers for the FRUs.

1. General Information

This chapter introduces and describes the Lexmark™ Color Jetrinter™ 4079 plus, the tools needed to repair it, and the customer switch settings that control the features of the printer.

Description

The Color Jetprinter is a tabletop four-color inkjet printer for draft or letter quality applications in an attended PC attach environment.

This printer uses four printheads with 64 nozzles each to produce both letter-quality and draft output.

Graphics resolution is available up to 360 dots-per-inch (dpi), depending on the printer menu selection and application. The printer prints in one direction only when printing graphic images.

You may use cut-sheet paper up to 297 mm (11.7 in.) by 432 mm (17.0 in.).

Coated Paper

Special coated papers are recommended for best printing results. Included with each supply of paper is a special brown cleaning sheet called *maintenance paper*. After printing a number of pages, print the nozzle test on this paper in order to clean the pickup and feed rollers.

After 2000 pages, wipe the platen and inside of the print cover to remove any ink mist that may accumulate and prevent staining of the print paper.

The capacity of the paper tray is approximately 100 sheets of coated letter-size paper. Envelopes and postcards can be fed from the paper tray as well.

An easy-to-use operator panel on the front of the printer provides control of print resolution and style.

Ink Cartridges

Each ink cartridge contains 30 grams of liquid ink, and is rated for as much as 700 pages of text.

Each color cartridge is physically coded to fit in its own color slot. Also, the ink cartridge has an electronic label which is sensed by the cartridge sensor. The ink is nontoxic, but contains isopropyl alcohol and should not be swallowed or gotten in the eyes. It will permanently stain clothing.

To prevent ink leaks, always ship the printer with the ink cartridges installed, and with the carriage locked in place.

Also make sure the four printheads are capped before switching the printer off. A star (*) is displayed when the heads are automatically capped.

Operating Temperatures And Humidity

Temperature and humidity levels are important to the correct operation of the printer. The ranges are:

Temperature 15-30° C (59-86° F)

Humidity 5-95% (no condensation)

Tools

The removal and adjustment procedures described in this manual require the following tools and equipment:

- Phillips screwdriver (small)
- Flat-blade screwdriver
- Fuse puller
- Analog volt ohmmeter(1) (a digital volt ohmmeter may also be used).
- Feeler gauge for head gap adjustment
- Syringe
- Drop cloth

- Grease
- Cleaning tissue
- Magnifier

Refer to the parts catalog for part numbers of special tools. When taking voltage readings, always use frame ground unless another ground is specified.

When you use the syringe, clip the end of the tip so it will fit over the small tube connectors and into the ink joints.

NOTE: Be careful not to separate the syringe plunger from the body of the syringe. The ink may leak and stain clothing and other items. Make sure the machine is in a suitable service area and place a drop cloth under the machine when you service it.

Printer Emulation

Before you use your printer with most software programs, you must select the appropriate printer driver from that program's printer selection menu. When you select a printer from the list, a driver is installed that allows your documents to be printed correctly on your printer.

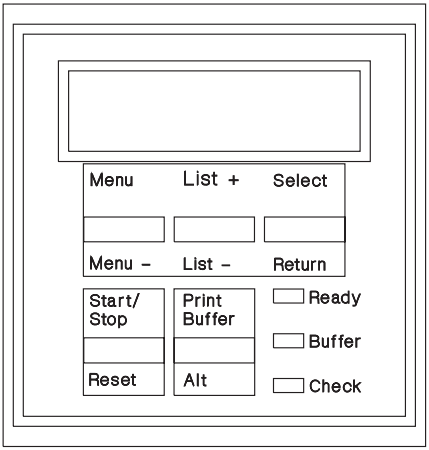
If the printer does not appear on the list in your program, you can use any of the following printer driver emulations, listed here in the order of their priority. Choose the first printer on the list that appears in your program's list of printers.

PRIORITY	PRINTER
1	1 QMS ColorScript 100 (Postscript mode)
2	Seiko ColorPoint PS Model 14

If none of these choices appear in your software, you may choose another PostScript printer. However, if you choose a non-color printer, your output will have only black print.

Operator Panel

You can access various printing functions and options using the printer's operator panel.



Indicators

There are several indicators in the operator panel that show the status of the machine.

Display This 2-line liquid crystal display (LCD) shows the printer's status, menu items and error messages.

For example, a star (*) is displayed when the printheads are capped.

Ready This indicator is on when the printer is on-line and is off when the printer is off-line. The Ready indicator is turned off when **Start/ Stop** is pressed, when there is a check condition such as out-of-paper, or when **Menu** has been pressed to display the menu.

Buffer This indicator blinks when data is being received by the printer. When the buffer indicator is on solid, it indicates the buffer is full or a partial page is stored. Press **Print Buffer** to print the stored page.

Check The Check indicator lights up when the printer requires operator intervention, such as ink or paper problems. An error message will also be displayed, indicating the type of problem.

Buttons

Five buttons on the operator panel control the printer. There are two operations for each button, depending on the state of the printer and whether **Alt** is pressed.

1. **Menu** and **Menu -**

Press **Menu** to display the menu system, whether the printer is Ready or Not-Ready. If a job is active, the Ready indicator is turned off, and the menu is displayed after the current job has completed printing. If the menu is already active, pressing **Menu** displays the next menu item on the top line of the display.

Menu - is accessed by pressing **Alt** + **Menu**, and moves to the previous menu item.

2. **List+** and **List -**

When the menu is active, these buttons display the list of items on the second line of the display. Press **Alt** + **List**+ (**List -** to move to the previous list item.

3. **Select And Return**

Select only operates when the menu is active.

If the top line of the menu is active, pressing **Select** causes the lower line to become active. If the lower line of the menu is active, pressing **Select** selects the current value being displayed. If the current value is a function, such as printing a test, it is executed. If the current value is a setting, such as High Speed, it becomes the permanent default.

Return is activated by pressing **Alt** + **Select** and it only operates when the menu is active. If the lower line of the display is active, pressing **Alt** causes the upper line of the display to become active. If the upper line of the display is active, pressing Alt exits the menu system in the Not-Ready state.

4. **Start/Stop** and **Reset**

If the Ready light is on, pressing **Start/Stop** turns off the Ready light and the printer stops processing information. The current job will be interrupted.

If the Ready light is off, pressing **Start/Stop** turns on the Ready light and the printer is ready to receive information.

When **Alt** + **Reset** is pressed, the printer returns to its power-on status.

5. **Print Buffer** and **Alt**

Print Buffer prints the contents of the print buffer, if any. When the Buffer indicator is on solid, the buffer contains a partial page of information.

Alt is used to access the secondary function on the other buttons by pressing and holding Alt while pressing another button.

Printhead Capping

The printheads are capped automatically after they have been in the home position for a few seconds. When the printheads are capped, a star (*) appears in the display. Do not turn the printer off without the heads being capped. If the heads are left uncapped, the ink dries out and print quality is affected.

Adjusting The Printhead Position Lever

The printhead position lever is the green lever attached to the carriage.

For optimum print quality, make sure this lever is adjusted according to the density of the ink in the document and the thickness of the paper being used. Setting the lever at position 1 sets the distance between the printhead and the paper at the minimum distance.

Follow these recommendations:

Position 1: Use for normal documents with normal ink density on the paper.

Position 2: Use for documents with densely inked graphics.

Position 3: Use for envelopes or thick paper, or for documents with very densely inked graphics.

If the head is positioned too close to thick paper, envelopes, or densely inked graphics, the ink could be smeared. In general, keep the head position as close as possible to the paper.

Also, be sure that quality coated paper is being used for best print quality.

Abbreviations

ASIC	Application-Specific Integrated Circuit
CSU	Customer Setup
DRAM	Dynamic Random Access Memory
EEPROM	Electrically Erasable Programmable Read-Only Memory
EP	Electrophotographic Process
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
HVPS	High Voltage Power Supply
LAN	Local Area Network
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
NVRAM	Nonvolatile Random Access Memory
OEM	Original Equipment Manufacturer
PICS	Problem Isolation Charts
PIXEL	Picture Element
POR	Power-On Reset
POST	Power-On Self Test
PQET	Print Quality Enhancement Technology
RIP	Raster Image Processor
ROS	Read-Only Storage
SRAM	Static Random Access Memory
UPR	Used Parts Replacement
VAC	Volts alternating current
VDC	Volts direct current

2. Diagnostic Information

Start

When the covers are removed, you will get a Cover Open error code. To prevent this, tape the cover open interlock arm in the closed position on the operator panel.

All voltages in the service checks are positive unless otherwise noted. When measuring voltages, always use frame ground unless otherwise specified.

Visually check the machine for obvious problems such as ink leakage, and worn or missing parts. Also reseat all cables, and check for good connections.

Note the error code number, if one is displayed in the operator panel, and the number of beeps sounded. If you have an error code, go to the “Error Code Table” on page 2-2 and follow the instructions for that error code.

If no error code is present, check the NVRAM for the Last Error code. (See the procedure in “Controller Diagnostics” on page 3-9).

If no error code number is displayed, or you cannot access Controller Diagnostics to check the last error code, or you have no clear symptom, continue with this Start procedure.

If you proceed through Start, the Error Code Table, and the Operator Codes and Symptom Table without determining an error code or symptom, go to “Undetermined Problem Service Check” on page 2-47 and then return here to Start.

When a service check instructs you to end the call, you should run “Test Print A” on page 3-3.

Check the following:

1. Turn the printer off. Make sure the carriage lock is disengaged, then turn the printer on. If there is no indication of power in the printer, go to the “Power Supply Service Check” on page 2-39.

2. If the printer has power but does not complete POST, with Ready on the display, go to the “Operator Panel Service Check” on page 2-31.
3. Run Test Print A. To enter Controller Diagnostics, press and hold Menu and Print Buffer while turning on the printer. After the POST is complete, the first item in the Controller Diagnostics menu is displayed. Use coated paper if available. If you use regular paper, allow for some color convergence. If an error code or detectable symptom occurs, go to the “Error Code Table”. If you have a symptom only, go to the “Operator Codes And Symptom Table” on page 2-8.
4. Turn the printer off and connect it to a host computer. Turn the printer on and send data from the computer to the printer. You can use the test print for this. If the data does not print as it was sent, go to the “Host Print Service Check” on page 2-22.

Error Code Table

To use this error code table:

1. Turn off the printer, wait four or more seconds, then turn on the printer.
2. Note any error code number that appears in the display, look for that code in the tables below, and take the indicated action.

- If two error codes are listed in the table: the top number is displayed if the controller board is installed; the bottom number is displayed if the controller board is removed.
- Some error codes are operator-correctable. See “Operator Codes And Symptom Table” on page 2-8.
- Other codes indicate the printer is performing an operation; no action is needed. For example, “04 Reset”, or “05 Self Test” means the printer is running POST.

3. If no error code is displayed, count the number of beeps and look for that number in the tables.
4. If no error code is displayed, and no beeps are heard, look for the symptom in the table and take the indicated action.
5. If you are unable to correct the problem using this index, go to the “Undetermined Problem Service Check” on page 2-47.

Note: If POST fails and a message is displayed, disregard the message and count the number of beeps.

Logged Error Code

If no error code number is displayed, you can enter Controller Diagnostics mode and check for Last Error code number. See “Controller Diagnostics” on page 3-9.

Code	No Of Beeps Or Symptom	Action Or Failing Fru
101 65	1 Beep - ROM error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
102 65	2 Beeps - RAM error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
103 65	3 Beeps - Printer controller	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
104 65	4 Beeps -	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
105 65	5 Beeps -	“Logic Board And Related Cables Service Check” on page 2-29.
106 65	6 Beeps -	“Logic Board And Related Cables Service Check” on page 2-29.

Code	No Of Beeps Or Symptom	Action Or Failing Fru
107 65	7 Beeps	"Logic Board And Related Cables Service Check" on page 2-29.
none	No Beeps - Operator panel does not work correctly (buttons or display)	"Operator Panel Service Check" on page 2-31.
108 65	8 Beeps - Read/write error	Logic board
109 68	10 Beeps - NVRAM error	Logic board
125 72	10 Beeps - Controller carriage motor disable	Logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
126 72	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
127 72	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
128 72	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
128 72	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Code	No Of Beeps Or Symptom	Action Or Failing Fru
138 61	10 Beeps - ROM error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
none, 63	10 Beeps - RAM error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
none, 66	10 Beeps - Printer controller error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
none, 72	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
none, 40	10 Beeps - Communications error	Logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
110 55	10 Beeps - Yellow head heat-pulse resistance error	“Head Heater Service Check” on page 2-20.
111 54	10 Beeps - Magenta head heat-pulse resistance error	“Head Heater Service Check” on page 2-20.
112 53	10 Beeps - Cyan head heat-pulse resistance error	“Head Heater Service Check” on page 2-20.
113 52	10 Beeps - Black head heat-pulse resistance error	“Head Heater Service Check” on page 2-20.
120 55	10 Beeps - Yellow head temperature detection error	“Head Temp/Heat Pulse Service Check” on page 2-20.

Code	No Of Beeps Or Symptom	Action Or Failing Fru
121 54	10 Beeps - Magenta head temperature detection error	“Head Temp/Heat Pulse Service Check” on page 2-20.
122 53	10 Beeps - Cyan head temperature detection error	“Head Temp/Heat Pulse Service Check” on page 2-20.
123 52	10 Beeps - Black head temperature detection error	“Head Temp/Heat Pulse Service Check” on page 2-20.
124 5F	10 Beeps - Printer internal temperature error - Check installation temperature standards	Check installation temperature standards. “Carriage Motor Drive Data Service Check” on page 2-13.“
12C, 5F	10 Beeps - Carriage motor drive data error	“Carriage Motor Drive Data Service Check” on page 2-13.
12A, 51	10 Beeps - Cap position error	“Head Cap Position Service Check” on page 2-18.
12B, 50	10 Beeps - Linear encoder error	“Print Escapement Service Check” on page 2-41.
12D, 50	10 Beeps - Home position detection error	“Print Escapement Service Check” on page 2-41.
12E, 5E	10 Beeps - Carriage motor over-current error	“Carriage Position Service Check” on page 2-14.
12F 5E	10 Beeps - POST does not complete	“Carriage Position Service Check” on page 2-14.
12F 5F	10 Beeps - Complete POST; Test Print A will not run	“Carriage Motor Drive Data Service Check” on page 2-13.
130 59	10 Beeps - Yellow head heater error	“Head Heater Service Check” on page 2-20.
131 58	10 Beeps - Magenta head heater error	“Head Heater Service Check” on page 2-20.
132 57	10 Beeps - Cyan head heater error	“Head Heater Service Check” on page 2-20.
133 56	10 Beeps - Black head heater error	“Head Heater Service Check” on page 2-20.
134 5D	10 Beeps - Yellow head ink sensor error	“Ink Sensor Service Check” on page 2-26.

Code	No Of Beeps Or Symptom	Action Or Failing Fru
135 5C	10 Beeps - Magenta head ink sensor error	“Ink Sensor Service Check” on page 2-26.
136 5D	10 Beeps - Cyan head ink sensor error	“Ink Sensor Service Check” on page 2-26.
137 5A	10 Beeps - Black head ink sensor error	“Ink Sensor Service Check” on page 2-26.
901	Insufficient memory to run POST	“RAM (Memory) Service Check” on page 2-46.
941	Incorrect checksum (EPROM)	EPROM Controller board (J7), RAM (J8) (4079-002)
945	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
946	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
950	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
951	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
952	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
953	Controller board failure	Controller board. Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.
960	Memory error	Controller board RAM (J5 or J8)
961	Memory Error	Memory SIMM failure, J8

Code	No Of Beeps Or Symptom	Action Or Failing Fru
980	Incorrect checksum (EPROM)	Controller board EPROM (J6), RAM (J5 or J8)
991	8 Beeps - communications error	“Undetermined Problem Service Check” on page 2-47.

Operator Codes And Symptom Table

The following code numbers are operator instructions and messages. In some cases, no action is required; others are operator-correctable; others may require service. An error code may require up to one minute to appear. Some symptoms may not generate an error code. Locate your symptom in the table and take the indicated action. .

Code	Beeps - Symptom	Action Or Fru
05	Power-on self-test (POST) is being performed.	No Action
06	Print test or other menu function being performed.	No Action
07	Printhead cleaning operation being performed.	No Action
08	Page Postscript due to language error; ending when End of Job is found.	No Action
09	Printhead refresh operation being performed.	No Action
Not Active	A key was pressed that is currently not active.	Release the key. Wait until the key is active.
22 13	Paper feeds into printer, then jams; error code displayed when carriage moves from home position when printing Test Print A.	Check and clear paper path. If error persists, go to “Paperfeed Electrical Service Check” on page 2-32.
23	Paper too short to print data; extra data will be discarded.	Use correct length paper.

Code	Beeps - Symptom	Action Or Fru
31	Paper loaded is incorrect size; correct size indicated on second line of display.	Change paper size loaded.
36 10	Paper tray empty or paper did not feed; POST completes, tries to feed paper when printing Test Print A; paperfeed motor does not rotate.	Load paper tray. If error persists, go to “Check Paper Service Check” on page 2-15.
none	Paperfeed problem; more than one sheet feeds into printer; pickup plate repeatedly raises and lowers while printing.	“Paperfeed Mechanical Service Check” on page 2-36.
none	No pickup of paper; paperfeed roller turning normally.	“Paperfeed Mechanical Service Check” on page 2-36.
none	Paper skews.	“Paperfeed Mechanical Service Check” on page 2-36. Paper tray overloaded; wrong type of media used or selected.
none	1 Beep - completes POST. A bumping or scraping noise is heard during printing.	Printhead cover not in place correctly.
36	1 Beep - completes POST. When Test Print A is run, printer feeds paper into printer; error code appears at different positions of carriage	“Paperfeed Electrical Service Check” on page 2-32.
none	Paper sticks together.	Fan paper; put less in paper tray.
30 12	Top cover open	“Cover Open Service Check” on page 2-17.
38, SIMMS	Insufficient printer memory to print page	Make page less complicated. Add memory to printer.

Code	Beeps - Symptom	Action Or Fru
54	Serial error (framing or parity) detected; possibly the serial link is set up incorrectly.	Press Start/Stop to continue. Once the serial error has been displayed, serial error reporting is suppressed until interface parameters are changed or printer is powered off.
60 16	Black ink cartridge empty	“Ink Sensor Service Check” on page 2-26.
61 16	Yellow ink cartridge empty	“Ink Sensor Service Check” on page 2-26.
62 16	Magenta ink cartridge empty	“Ink Sensor Service Check” on page 2-26.
63 16	Cyan ink cartridge empty	“Ink Sensor Service Check” on page 2-26.
64 14	Black ink cartridge not installed	“Ink Cartridge Service Check” on page 2-22.
65 14	Yellow ink cartridge not installed	“Ink Cartridge Service Check” on page 2-22.
66 14	Magenta ink cartridge not installed	“Ink Cartridge Service Check” on page 2-22.
67 14	Cyan ink cartridge not installed	“Ink Cartridge Service Check” on page 2-22.
72	Disk Full	No Action
73	Unformatted Disk	No Action
74	Defective Disk	Replace the disk.
none	Missing data or additional data in print job.	“RAM (Memory) Service Check” on page 2-46.
none	Bad print quality; missing dots, white streaks. Ink flow observed through large purge waste lines.	Clean heads. Seat ink cartridges firmly. Check type of media selected. “Print Quality Service Check” on page 2-43.
none	Light print followed by voids in print, in one color or all colors; no ink flow through large purge waste lines	“Ink Flow Service Check” on page 2-24.

Code	Beeps - Symptom	Action Or Fru
none	Blurring or smudging of print	Printhead position lever too low. Wrong type of media. Wrong print mode selected see “Printing Mode” on page 3-4.
none	Smeared print, poor quality	Printhead position lever in wrong position see “Adjusting The Printhead Position Lever” on page 1-6.“Print Quality Service Check” on page 2-43.
none	Failing LED or button on operator panel; printer operates normally otherwise.	“Diagnostic Aids” on page 3-1.
none	1 Beep - POST completed, but operator panel does not operate normally	“Operator Panel Service Check” on page 2-31.
none	No lights or beeps; printer will not begin POST	“Power Supply Service Check” on page 2-39.
none	All LEDs are on; POST started; display blank.	“Power Supply Service Check” on page 2-39.
none	8 Beeps - POST started; all LEDs are on, display blank.	“Power Supply Service Check” on page 2-39.
none	10 Beeps - POST started; all LEDs on, display blank.	“Power Supply Service Check” on page 2-39.
none	Printer will not print from host computer; Test Print A runs normally.	Make sure printer is on-line “Host Print Service Check” on page 2-22.
none	Carrier motor stops in the middle of the writing line.	Go to the “Paperfeed Electrical Service Check” on page 2-32.
error code	Symptom or error code not listed	“Undetermined Problem Service Check” on page 2-47.

Service Checks

Carriage Drive Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code or a failing carriage drive motor.	• Carriage motor • Logic board

	FRU	Action
1	• Carriage Drive Motor • Carriage Board • Logic Board	Check the carriage drive motor winding resistance. Connector pins 5 and 6 are one phase; pins 7 and 8 are the other phase. The resistance should be approximately 0.8 Ohms per phase. If the resistance is incorrect, replace the carriage drive motor.If the resistance is correct, replace the carriage board. If you still have a problem, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Carriage Motor Drive Data Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code indicating a carriage drive data error.	• Carriage belt and idler assembly • Carriage motor • Linear encoder/paper width sensor • Carriage board • Logic board

Be sure the printer is not installed in an unusually hot or cold environment. See *the Lexmark Color Jetprinter 4079 Plus User's Reference* for installation standards.

	FRU	Action
1	Belt and Idler Assembly	Proper belt tension is required for good escapement. Check the condition of the belt and idler assembly. Replace any damaged or worn parts.
2	• Carriage Motor • Carriage Motor Cable • Linear Encoder/ Paper Width Sensor	The carriage motor and linear encoder/paper width sensor assembly work together to move the carriage and maintain proper escapement. Check the carriage motor cable for continuity and then replace the following FRUs in the order shown to see if the error code is recovered and the machine completes POST. 1. Carriage Motor 2. Carriage Motor Cable 3. Linear Encoder/Paper Width Sensor
3	• Carriage Board • Carriage Ribbon Cable • Logic Board	The carriage motor transfers signals to the carriage board on the logic board. If an incorrect signal is received and error code is displayed. Check the continuity of the carriage ribbon cables. If the cables are all right, replace the carriage board. If the error doesn't go away, replace the logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Carriage Position Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code indicating a carriage motor or carriage linear encoder/ paper width sensor error.	• Carriage lock • Carriage drive path obstructed • Carriage belt or idler • Carriage motor • Print timing slit • Brown carriage ribbon cables • Linear Encoder/Paper Width Sensor • Logic board

The carriage should attempt to move when the machine is turned on. If it does not, go to the “Carriage Motor Drive Data Service Check” on page 2-13.

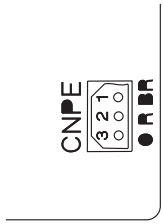
	FRU	Action
1	Carriage Lock	The carriage lock is used to hold the carriage in a locked position during shipping or to prevent unauthorized use. Be sure the lock is in the unlocked position. Replace it if it is damaged.
2	• Carriage Drive Belt • Idler Pulley	Be sure the carriage drive belt and the idler gear are not damaged.
3	Print Timing Slit	The print timing slit has coded carriage escapement identification on it. If the characters are not printed in their correct positions, the timing slit may be damaged and must be replaced. Check for dirt, damage, or folds.
4	• Brown Carriage Ribbon Cables • Carriage Linear Encoder/ Paper Width Sensor	The carriage linear encoder checks the position of the carriage by reading timing data on the timing slit. If the linear encoder is failing, the carriage loses position and an error codes is displayed. Check the brown carriage ribbon cables for continuity. If the continuity is incorrect, replace the carriage linear encoder (Asm 9-2).

	FRU	Action
5	Logic Board	If the characters are printed in their correct position and you still receive an error code, replace the logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Check Paper Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
Paper insertion problems; Paper tries to enter machine; error code 36/10 displayed.	• Dust on pickup roller • Paperfeed motor drive • Paper out photo sensor

	FRU	Action
1	Pickup Roller	A dirty pickup roller can cause paper timing problems. Visually check the paperfeed parts. If necessary, clean the pickup roller with a clean cloth and isopropyl alcohol.

	FRU	Action
2	Paper Out Photo Sensor Paper Out Photo Sensor Cable	Check the paper sensor signal at CNPE pin 1 on the right connector card, with the card plugged in.  You can manually feed paper to check this signal. Push the paper lift spring clutch plate (Asm.20-10) to the right, and turn the rear ejector roller (Asm. 18-2). The spring plate is under the carriage shaft to the left of the carriage motor. Voltage should be high (4-5 V dc) when the paper sensor arm blocks the light path (paper is not present). Voltage should be low (<2 V dc) when the paper sensor arm does not block the light path (paper is present). If the voltage is not correct, remove the card cover (asm. 4-8), then adjust the paper out photo sensor holder mounting screw so the sensor is as high in its slot as possible. Check the voltages again. If the voltages are still not correct, replace the paper out photo sensor or the paper out photo sensor cable as needed.

If the symptom remains, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Cover Open Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
The Cover Open message is displayed with the inner cover closed.	• Inner cover not closed correctly • Operator panel • Logic board

	FRU	Action
1	Inner Cover	The inner cover actuates the operator panel cover interlock lever. Check the cover for damage and be sure it can fully close.
2	Operator Panel	A damaged or obstructed cover interlock lever located on the operator panel will not allow the cover open sensor to turn off the Open Cover message. Remove any obstructions or replace the operator panel if it is damaged.
3	Logic Board	The Open Cover message is sent from the logic board when the operator panel cover interlock is not pushed down. Push the lever down, if the Open Cover message does not go off, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Hard Disk Service Check

	FRU	Action
1	Hard Disk Interface Card	Be sure the hard disk interface card is correctly installed and not damaged.
2	Hard Disk	Enter the Controller Diagnostic Menu Select Disk Menu and run the Quick Disk Test. If you get a failure, replace the hard disk. If you do not have the disk menu in the Diagnostic Menu, check for proper installation of the hard disk and the hard disk interface card.I

Head Cap Position Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code or a purge motor or purge sensor failure.	• Purge motor • Purge sensor, cable assembly • Purge assembly • Left connector cable • Logic board

Turn on the printer and observe the purge motor. If the motor does not run, go to the “Purge Unit Service Check” on page 2-45.

	FRU	Action
1	Purge Sensor Cable Assembly	1. Center the heads. See “Printhead Uncapping and Carriage Centering” on page 4-9. 2. Turn off the printer. 3. Remove the purge assembly and lay it on its side. Use absorbent material to protect from leaking ink. 4. Check the sensor on the bottom of the purge assembly. If it is broken, or has dirty contacts, replace it.

	FRU	Action
2	Purge Assembly • Left Connector Cable • Logic Board	Be sure all the ink lines are connected. With the purge assembly removed and laying on its side, check the voltage on the contact straps. The voltage should be +5 V dc with the contacts open. As the contacts close, the voltage should drop to 0 V dc. If the voltage is incorrect, check the continuity of the left connector cable. If the continuity is incorrect, replace the cables as needed. If the continuity is correct, replace the logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

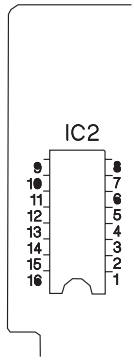
Head Heater Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have a head heater error code.	• Carriage board • Logic board • Printhead • Carriage cables

	FRU	Action
1	Printhead	Use the codes in the“Error Code Table” on page 2-2 to identify the printhead you think may be failing. Be sure the printhead is seated properly and the head cover is fully closed.
2	Brown Carriage Cables	Check the continuity of the brown carriage cables. Replace if necessary.
3	• Carriage Board • Logic Board • Printhead	Replace the carriage board and run Test Print A to check the print quality. If the problem is not corrected, replace the logic board. Be sure to go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment. If the problem is still not corrected, replace the printhead.

Head Temp/Heat Pulse Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code indicating a head temperature error or heat pulse resistance error.	• Printhead • Carriage board • Logic board

	FRU	Action
1	• Printhead • Carriage Board	Use the codes in the"Error Code Table" on page 2-2 to identify the printhead you think may be failing. Be sure the printhead is seated properly and the head cover is fully closed. Check the voltage to the printhead as read by the analog switch IC2 on the carriage board.Check the resistance and voltage between each pin and frame ground. Be sure to turn off the printer when you check resistance. Black Head - pin 12 should read 2k - 4k Ohms, and 1.02 - 5.03 V dc. Black head, pin 4 should read 1.74 - 4.46 V dc. Cyan Head - pin 15 should read 2k - 4k Ohms, and 1.02 - 5.03 V dc. Cyan head, pin 2 should read 1.74 - 4.46 V dc. Magenta Head - pin 14 should read 2k - 4k Ohms, and 1.02 - 5.03 V dc. Magenta head, pin 1 should read 1.74 - 4.46 V dc. Yellow Head - pin 13 should read 2k - 4k Ohms, and 1.02 - 5.03 V dc. Yellow head, pin 5 should read 1.74 - 4.46 V dc.  If the signals are incorrect, replace the defective printhead. If the signals are correct, replace the carriage board.

If the problem is not corrected, replace the logic board. Be sure to go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Host Print Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
The printer does not communicate with the host computer.	• Incorrect protocol set • Controller board

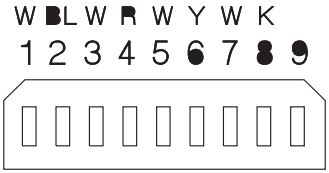
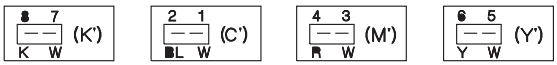
	FRU	Action
1	• Incorrect Protocol Set • Controller Board	Run Test Print A.To enter Controller Diagnostics, press and hold Menu and Print Buffer while turning on the printer. After the POST is complete, the first item in the Controller Diagnostics menu is displayed. If the test runs successfully, disconnect the serial/parallel interface cable, install the wrap plug (PN 1319128), and then run the wrap test (see “Paper Load Test” on page 3-10. If the test fails, replace the controller board.

Ink Cartridge Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
The printer does not sense an ink cartridge when one is installed.	• Cartridge detection resistor • Cartridge sensor cable • Cartridge sensor

If you are instructed to remove the ink cartridge assembly, it is recommended that you remove all ink cartridges, carefully drain the ink from the lines into a plastic-lined waste can or absorbent material, then replace the cartridges and wrap a packet of cleaning cloths or paper towels over the connector end, secured with a rubber band.

Keep the assembly on a level plane while servicing with the black cartridge end slightly elevated. Cover any open ink lines with absorbent cloth, secured with a rubber band, when possible.

	FRU	Action
1	Ink Cartridge	The error code should indicate which cartridge is suspected. Check the ink cartridge detection resistor pad (top left of each cartridge). The resistance should be 15K to 25K Ohms. If the resistance is incorrect, replace the ink cartridge.
2	Logic Board	Disconnect the CNID connector from the left connector card. With the ink cartridge installed, check the resistance between the pins designated for each cartridge sensor (pins 1 and 2; 3 and 4; 5 and 6; 7 and 8). Pin 9 is not used. The resistance should be 15K to 25K Ohms. If the resistance is *correc*t, replace the logic board, left connector card, and left connector cable. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
3	• Sensor Cable • Ink Cartridge Sensor	Remove the ink cartridge assembly. Check the continuity on the sensor cable. Match pin numbers at both ends of the cable.   If the continuity is correct, replace the ink cartridge sensor. If the continuity ius incorrect, replace the sensor cable.

Ink Flow Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have no ink flow, with no error code displayed.	• Ink Cartridge Supply Lines • Carriage supply and waste lines • Purge waste lines • Ink cartridge waste lines • Purge Unit • Ink supply assembly • Printhead

Important: A long cleaning uses a significant amount of ink. To minimize ink flow while you troubleshoot ink flow problems, it is helpful to be familiar with normal ink flow. If needed, study the "Ink Supply Diagram" on page 5-6, and the text on the following page. Start with the flow of ink from the ink cartridge.

It is also helpful to be familiar with this service check. Read the entire service check to become familiar with the parts you need to check. Check as many parts as possible during the long cleaning rather than performing a long cleaning for each step.

	FRU	Action
1	• Carriage Ink Supply Assembly • Ink Cartridge Supply Lines	Perform a Long Cleaning. Be sure the carriage supply lines are full of ink at the cartridge assembly connection (smaller lines). If they are not, check the carriage ink supply line for blockage. Follow the lines to see whether they are filled or empty.
2	Purge Unit	Be sure the purge assembly motor is operating normally. If it is not, replace it. Be sure the carriage waste lines at the purge assembly connector are full of ink. If they are not, replace the carriage ink supply assembly (Asm. 10-1). Be sure ink flows through the large purge waste lines when the purge motor runs. If it does not, replace the purge unit.

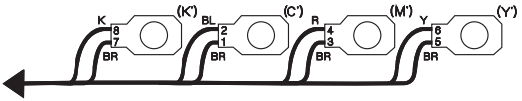
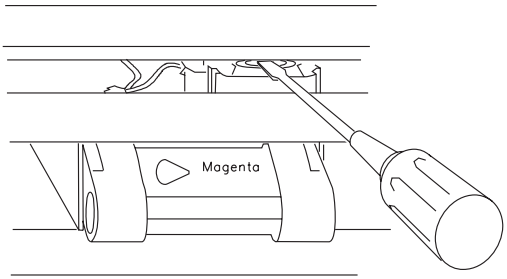
	FRU	Action
3	Carriage Ink Supply Assembly	Be sure the carriage ink supply assembly waste lines fill when the purge motor completes its cycle.
4	• Ink Cartridge Assembly Waste Lines • Ink Cartridge	The purge unit discharges ink back to the ink cartridge through the waste line in the ink return unit. Be sure the waste lines are not blocked. Also, be sure the ink cartridge is good.
5	Printhead	Be sure ink is flowing through the ink supply assembly (asm. 10-1). Perform a Long Cleaning. Replace the printhead for the color that fails to flow.

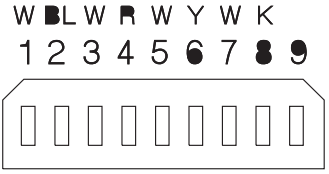
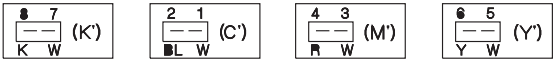
Ink Sensor Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have problems with ink sensing. The sensor may indicate no ink when a good cartridge is installed, or may fail to indicate when the cartridge is empty.	• Ink cartridge • Ink sensor • Ink sensor cable • Logic board

If you are instructed to remove the ink cartridge assembly, it is recommended that you remove all ink cartridges, carefully drain the ink from the lines into a plastic-lined waste can or absorbent material, then replace the cartridges and wrap a packet of cleaning cloths or paper towels over the connector end, secured with a rubber band. Keep the assembly on a level plane while servicing with the black cartridge end slightly elevated. Cover any open ink lines with absorbent cloth, secured with a rubber band, when possible.

	FRU	Action
1	Ink Cartridge	The ink sensor determines whether an individual ink cartridge is empty and causes an error code. Remove the ink cartridge. Hold a cloth over the sensor end, and gently shake the cartridge. If you do not feel or hear ink movement in the cartridge, replace it.

	FRU	Action
2	Ink Sensor	Check the ink sensor by checking for 5 V dc between the pins designated for each cartridge sensor on the CNINK connector as you push the sensor down and up. Cyan = pins 1 - 2 Magenta = pins 3 - 4 Yellow = pins 5 - 6 Black = pins 7 - 8  To push down the ink sensor: insert a thin screwdriver just above the ink cartridge assembly and below the paper lift plate, then push the ink sensor plunger down. The voltage should be low when the sensor is on (the center of the sensor is up), and high when the sensor is off (the center of the sensor is down). If the voltage is correct, replace the ink sensor. 

	FRU	Action
3	• Sensor Cable • Logic Board	Check the sensor cable continuity, matching pins on CNINK at the left connector card with wires to the ink sensor units. If the continuity is not correct, replace the sensor cable.   If the continuity is correct, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Logic Board And Related Cables Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have problems with the logic board or cables.	• System cables • Carriage board • Logic board

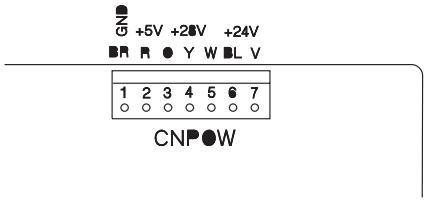
.

	FRU	Action
1	• Brown Carriage Cable 2 • White Ribbon Cable 2 • Carriage Board • Logic Board	Follow these steps if 5 beeps are sounded, checking the error after each action: 1. Check for correct connection of the brown carriage cable 2 to the carriage board and the right connector card. 2. Check for correct connection of the white ribbon cable 2 to the right connector card and the logic board. 3. Check continuity of the white ribbon cable 2 (23 pin) and brown carriage cable 2 (19 pin), checking pin-for-pin. 4. Replace the carriage board. 5. Replace the logic board.If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

	FRU	Action
2	• Brown Carriage Cable 1 • White Ribbon Cable 1 • Carriage Board • Logic Board	Follow these steps if 6 beeps are sounded, checking the error after each action: 1. Check for correct connection of the brown carriage cable 1 to the carriage board and the right connector card. 2. Check for correct connection of the white ribbon cable 1 to the right connector card and the logic board. 3. If the problem persists, check continuity of the white ribbon cable 1 (23 pin) and brown carriage cable 1 (19 pin), checking pin-for-pin. 4. Replace the carriage board. 5. Replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
3	• Operator Panel Cable • Operator Panel • Logic Board	Follow these steps if 7 beeps are sounded, checking the error after each action: 1. Make sure the operator panel cable is correctly connected at the right connector card. 2. Replace the operator panel. Replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Operator Panel Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
Nothing appears on the display, buttons or LEDs fail, but the printer starts POST.	• Power supply • Operator panel • Logic board • Controller board

	FRU	Action
1	Power Supply	1. Disconnect the power supply connector from the controller board. 2. Remove the controller board. 3. Check for 5 V dc at pin 2 of the CNPOW connector with the connector plugged into the logic board. If it is not correct, replace the power supply. 
2	• Operator Panel • Logic Board	1. Disconnect the power supply connector from the controller board. 2. Remove the controller board. 3. Turn on the printer and see if anything displays on the operator panel. Turn the machine off within ten seconds to avoid going into a Long Clean. If nothing appears on the display, replace the operator panel. If you still have the problem, replace the logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

	FRU	Action
3	• Controller Board • Operator Panel	Turn off the printer. Install the controller board and connect the power supply connector. Press and hold MENU and Print Buffer and turn on the printer to clear the controller diagnostic mode. Check operation of buttons, LEDs, and LCD, see "Controller Diagnostics" on page 3-9. If they all pass their tests, replace the controller board. Be sure to transfer the controller card and memory SIMMs to the new card. If the buttons, LEDs, and LCD do not pass the tests, replace the operator panel.

Paperfeed Electrical Service Check

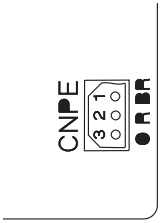
Symptom Explanation	Conditions That Could Cause This Symptom
Paper eject problems; an error code is displayed when the carriage moves away from home position while printing Test Print A.	• Dirty platen • Paper jam • Linear encoder/paper width sensor mounted too low, or failing • Paper out photo sensor failing

If the paper lift plate lifts more than once or feeds more than one sheet of paper, go to the "Paperfeed Mechanical Service Check" on page 2-36.

Use the following chart to determine when the error code appears. Turn the machine on and carefully observe when the error code appears, then go to the appropriate FRU check.

Error Code Appears	Go To
When the printer is turned on	Step 1
When the carriage moves left to right as the paper is picked up.	Step 2
When the carriage moves right to left as the paper is picked up	Step 3
During printing when the carriage does not move correctly	Step 4

Error Code Appears	Go To
When paper is in the printer beyond the start position of Test Print A, or above the ejector rollers, but not beyond the platen.	Step 5

	FRU	Action
1	• Paper Out Sensor • Paper Out photo sensor Cable • Ribbon Cable • Logic Board	Remove any paper that may be in the machine. Observe the paper-out sensor arm from the rear of the machine under the paperfeed roll. Be sure the paper sensor arm operates smoothly, blocking the light path of the paper-out sensor when there is no paper in the paper path. If the light is blocked by a foreign object, remove the object and check the operation of the sensor arm and sensor holder. If the light path is all right, check the paper-out voltage between pin 1 and ground on the CNPE connector on the right connector card, with the connector plugged in.  The voltage should be high (4 - 5 V dc) when the paper sensor arm blocks the light path of the paper-out sensor, and low (>2 V dc) when the light path is not blocked. If the voltage is correct, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment. If the voltage is not correct, check the continuity of the paper sensor cable by matching wire colors. Also check the continuity of the ribbon cables. Replace the cable if necessary. If this does not fix the problem, replace the paper-out sensor.

	FRU	Action
2	• Platen • Linear Encoder/ Paper Width Sensor	Check the platen for bits of paper, paper dust, or ink. Clean the platen with a wet paper towel if necessary. When the carriage moves to pick up paper, the paper width sensor detects the black surface of the platen and the white surface of the paper to determine the width of the paper. Even a slight scratch will deflect light. To check a suspected platen, cover any scratches with small pieces of black electrical tape, then test the printer. Remove the tape when the repairs are complete. Check the platen surface. If the painted surface is damaged, the paper width sensor cannot detect the platen correctly. Replace the platen if necessary. If the platen is all right, replace the linear encoder/ paper width sensor and check the printer operation.
3	• Paperfeed Rollers • Linear Encoder/ Paper Width Sensor • Logic Board	Be sure correct paper is being used. Clean the paperfeed rollers and remove any foreign objects from the paper path. If the paperfeed rollers do not turn and the motor does not run go to the“Paperfeed Motor Service Check” on page 2-38. If the paper is being fed correctly, remove and replace the following FRUs in sequence. Check printer operation after each replacement. 1. Linear Encoder/Paper Width Sensor 2. Logic Board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

	FRU	Action
4	• Timing Slit • White Ribbon • Brown Ribbon • Carriage Board • Logic Board	Be sure the carriage is unobstructed and moves freely. Be sure the printer is not picking up vibrations from the environment. Move the printer to a different location if necessary. Check the timing slit for damage, dirt, and folds. Replace the timing slit if necessary. If the timing slit is all right, replace the following FRUs in sequence. Check the printer after each replacement. 1. Carriage Board 2. Logic Board If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
5	• Eject Roller • Pinch Roller	Check for foreign objects in the paper path. Also check the rollers for wear or damage. If the paperfeed rollers do not turn, go to the "Paperfeed Motor Service Check" on page 2-38.

Paperfeed Mechanical Service Check

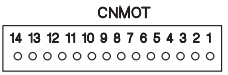
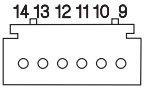
Symptom Explanation	Conditions That Could Cause This Symptom
Paper indexing or feeding problem; you may see an error code.	• Foreign object in path • Paper dust or ink on rollers • Paperfeed motor, gear train • Paper pickup mechanism • Paper transport mechanism • Paper exit mechanism • Spur unit

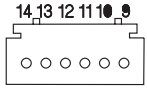
	FRU	Action
1	Gear Train	Be sure there are no foreign objects in the paper path. Watch the paperfeed and eject rollers during POST. If they do not rotate, check the gear train and replace any damaged parts. See “Paper Path” on page 5-7.
2	Pickup Roller Spring Plate	Run Test Print A and watch the paper lift plate while the feed rolls are rotating. The paper lift plate should rise and fall only one time during POST or when the pickup roller spring (Asm. 20-10) actuates the pickup roller assembly. If the plate does not rise and fall correctly, replace it.
3	Paperfeed Roller	Be sure the pickup roller feeds paper into the printer. If it does not, clean the paperfeed roller by running a piece of brown cleaning paper through the printer, or replace the paperfeed roller (Asm.18-3). Cleaning paper is provided with each batch of coated printed paper.
4	Sheetfeed Separation Assembly	If more than one sheet of paper enters the paperfeed rollers, replace the sheetfeed separation assembly or related parts (Asm. 19-21).

	FRU	Action
5	• Pinch Roller • Paperfeed Roller	Be sure the paper moves through the paperfeed pinch rollers onto the platen. If it does not, replace the following FRUs in sequence. Check printer operation after each replacement. 1. Pinch Roller Assembly or related parts (Asm. 17-1) 2. Paperfeed Roller Assembly (Asm. 18-3)
6	• Eject Roller • Spur Unit	Be sure the paper moves smoothly through the eject rollers and the inner cover spur units. If they do not, clean or replace the eject rollers (Asm. 18-2), or replace damaged spur unit or units (Asm. 3-1).

Paperfeed Motor Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
No paperfeed roller rotation during POST or while printing Test Print A.	• Paperfeed motor • Logic board

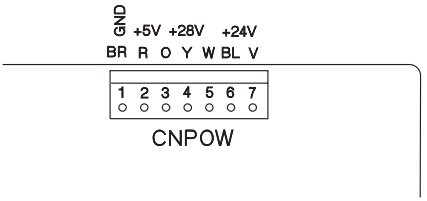
	FRU	Action
1	Paperfeed Motor Cable	Watch the paperfeed motor and gears as you turn on the printer. If the gears do not rotate, turn off the printer and check the continuity of the paperfeed motor cable. Notice that the pins are labeled 9 - 14 on the paperfeed motor connector, corresponding to the same pins on the CNMOT connector on the logic board. If the continuity is incorrect, replace the paperfeed motor cable.  

	FRU	Action
2	Paperfeed Motor	Check the paperfeed motor winding resistance at the motor connector. The pins are numbered 14 - 9, with 14 at the top of the connector. Check the resistance on four phases, each of which should have approximately 70 Ohms resistance. • 13 - 11 • 13 - 9 • 14 - 12 • 14 - 10  If the resistance is incorrect, replace the paperfeed motor. If the resistance is correct, replace the logic board. If you replace the logic board, go to the "Service Adjustment Mode" on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Power Supply Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
The printer does not start POST, the display is blank, and there are no beeps or lights.	• AC outlet • Power cord • Primary fuse • Power supply • Controller board • EPROM Controller card • Memory SIMM

	FRU	Action
1	Power Cord	Be sure there is power at the AC outlet. Unplug the power cord and check it for continuity.

	FRU	Action
2	Fuse	Check the primary fuse at the power supply. If it is bad, replace it and check the machine again.
3	Power Supply	Turn the machine off and remove the controller board and the card cover. Leave connector CNPOW plugged into the logic board and unplug the power supply connector from the controller board. When you make the following voltage check, turn the power off before you connect the meter leads. Connect the meter leads then turn the power on briefly to check the voltage. Turn the power off quickly to avoid a cleaning cycle. Use Pin 1 as ground and check the following voltages with the connector plugged in. pins 1 - 2 = 5 V dc pins 1 - 4 = 28 V dc pins 1 - 6 = 24 V dc  Check the voltage on the power supply connector, J4 for 4079-001 or J6 for 4079-002: pins 1 - 5 (brown to yellow) = 5V dc pins 3 - 5 (red to Yellow) = 5 V dc If the voltages are incorrect, replace the power supply

	FRU	Action
4	• Controller Card • EPROM Controller Card • Memory SIMMs	Leave the controller board removed and the power supply disconnected. Go to the, “Service Adjustment Mode” on page 4-4 and follow the procedure to enter the Service Adjustment Mode with the controller board removed. Ready or an error code should appear in the display. If the POST does not run, replace the power supply. If the POST does run, remove and replace the following parts until the failure is corrected: 1. Controller Board 2. EPROM Controller Card 3. Memory SIMM J5 4. Memory SIMM J8.

Print Escapement Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You have an error code indicating a print timing slit error or carriage linear encoder error.	• Carriage motor • Print timing slit • Linear encoder/paper width sensor • Carriage board • Logic board

If the carriage does not move or attempt to move when you turn on the printer, go to the “Carriage Motor Drive Data Service Check” on page 2-13

Be sure there is no obstruction in the carriage drive path and that the print timing slit is not dirty, broken, or bent. Use a cleancloth to clean the timing slit. If the drive path is obstructed, clear the obstruction, then run POST to check the printer.

	FRU	Action
1	Carriage Cables	Check the continuity of the brown carriage cables. Replace the cables if necessary.
2	• Linear Encoder/ Paper Width Sensor • Carriage Board • Logic Board	Remove and replace the following parts in the order shown. Check the printer after each replacement to see if the problem is solved. 1. Linear Encoder/Paper Width Sensor 2. Carriage Board 3. Logic Board If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

Print Quality Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
Print quality problems, missing dots, colors, or ink smearing. Possible ink supply problem.	• Clogged ink lines • Printhead • Cartridge present sensor

You are in this service check because the print sample nozzle check indicates some nozzles may be blocked. Perform a Normal Cleaning, see “Printhead Cleaning Procedures” on page 3-4, then check the print quality by running the “Print Sample” on page 3-3. If the print quality is not satisfactory, perform a Long Cleaning and check the print quality again.

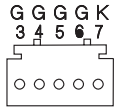
Be sure the correct paper is being used (coated), and the printer is in the correct print mode. See “Printing Mode” on page 3-4.

	FRU	Action
1	Ink Cartridge	Remove the ink cartridge you think has a problem, cover the sensor end with a cloth, and gently shake the cartridge. If you cannot hear or feel ink moving, replace the cartridge.
2	Platen	Be sure the platen is not dirty or ink-stained. Check the printhead gap. See “Head Gap Adjustment” on page 4-2.

	FRU	Action
3	Ink Flow and Supply Lines	1. Be sure the ink line connectors are not loose, disconnected, or defective. 2. Be sure the carriage is not catching on the ink lines. Reposition the ink lines as necessary. 3. Perform a Long Cleaning, observing the carriage supply lines, subtank ink levels, and carriage waste lines. 4. Check for the following conditions, if they are not correct, go to the "Ink Flow Service Check" on page 2-24. • The carriage supply lines are always filled with ink. • Ink flows through the carriage supply lines. • The carriage subtank levels of ink are equal for all colors. • Ink from the carriage waste lines is drawn into the purge assembly • Ink is pumped in pulses through the large purge waste lines into the ink cartridge assembly.
4	Printhead	Perform a Long Cleaning twice, then perform Test Print A. If the print is unsatisfactory enter the "Service Adjustment Mode" on page 4-4 and perform Test Print A again. If the print is still unsatisfactory, replace the printhead that failed.

Purge Unit Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
You are here after using the Head Cap Position Service Check, or because you suspect the purge motor is bad and you have no ink flow.	• Purge motor • Purge sensor cable • Left connector card cable • Logic board

	FRU	Action
1	Purge Motor	Check the purge motor winding resistance. Pin 3 is ground. Pins 4, 5, 6, and 7 are windings. The black wire is pin 7. The resistance should be about 70 - 80 Ohms per phase. If it is not, replace the purge motor. 
2	Purge Sensor Cable	Check the continuity of the purge sensor cable (pins 1 and 2 on CNPG on the left connector card) Replace the cable if needed.
3	• Left Connector Cable • Logic Board	Check the continuity of the left connector card cable. Begin with the black wire on CNMEC on the logic board and on the left connector card. If the continuity is correct, replace the logic board. If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.

RAM (Memory) Service Check

Symptom Explanation	Conditions That Could Cause This Symptom
Data is missing from your print job, additional data appears, or error code 960.	• RAM SIMM J5 or J8 (4079-001 only) • Logic Board (4079-002 only)

	FRU	Action
1	SIMM	The printer requires 4 MB of RAM to complete POST. If error code 960 appears, replace the SIMM in J8, which should be 4 MB, then continue (4079-001 only). If you receive a 960 error with a 4079-002, replace the controller board which includes the first 4MB of RAM. Check the RAM installed in the printer. Go to “Controller Diagnostics” on page 3-9 and run the RAM test. Note the amount of memory reported in your printer. If the correct amount is not reported for each SIMM, replace the faulty SIMM. If the correct amount is reported go to the “Print Quality Service Check” on page 2-43.

Undetermined Problem Service Check

You have been directed to this service check because you cannot find an error code or symptom in “Start” on page 2-1 or the “Error Code Table” on page 2-2 or because more information is needed on the symptom or error code than the Error Code/Symptom Index can provide.

1. Turn off the printer and disconnect the power cord.
2. Disconnect the controller board power supply connector J4 (4079-001) or J6 (4079-002).
3. Remove the controller board from the machine.

The controller board stores all operator settings and contains NVRAM and ROM memories. When the controller board is removed, all operator settings are ignored. The printer defaults to a secondary menu system which allows you to run Test Print A to check the machine operation. To run Test Print A:

1. Connect the power cord and turn on the machine.
2. Wait for the machine to complete POST.
3. Press **Select**.
4. Press **List** until Test Print is displayed.
5. Press **Start/Stop** until Test Print A is displayed.
6. Press **Start/Stop** to run the test.
7. Make a note of the error code, number of beeps, or symptom.
8. Continue with “Start” on page 2-1.

If you have been directed here a second time, and POST does not run or you have no error code or symptom, replace the following FRUs one at a time, checking the printer operation after each replacement.

1. Logic board - If you replace the logic board, go to the “Service Adjustment Mode” on page 4-4 and perform the print position adjustment, and the direction offset adjustment.
2. Controller board - Be sure to transfer the EPROM controller card and memory SIMMs from the old board to the new one.

Reinstall the parts that do not fix the problem.

3. Diagnostic Aids

Testing The Printer

Diagnostic Aids are divided into two types of functions: Controller Diagnostics, and Service Adjustment Mode. In addition, some test prints can be run from the operator mode.

The tests are provided for printer testing and diagnostics. The printer does not need to be attached to a host system to use the tests.

Using The Menu System

There is one menu in the printer, with two levels of display.

When the *top level* of menus is displayed, the display shows the current *menu* on the top line, and the current item on the bottom line.

When the lower level of menus is displayed, the display shows the current item on the top line, and the current value for that item on the bottom line.

- To move from the top level to the lower level of the menu, press the **Select** button.
- To move from the lower level to the top level of the menu, press **Alt** + **Select**.
- To scroll through the top line menu items, press **Menu** or **Alt** + **Menu** (**Menu -**).
- To scroll through the lower line menu items, press **List+** or **Alt** + **List+** (**List -**).

Operator Test Functions

When the printer is turned on, it goes through a check-out routine and indicates any failure by an error code number in the display. Some of these codes are correctable by the operator, others can only be repaired by a trained service person. The error codes are listed in the “Error Code Table” on page 2-2. A normal cleaning operation is also performed when the printer is turned on.

In normal operator mode, the following Test menu appears:

4079-001)

Menu Item	Value
Clean Heads	• Normal Clean • Print Sample • Long Clean
Print Test Page	• PS Test Page • GL Test Page • Test Print A • Test Print B

4079-002:

Menu Item	Value
Clean Heads	• Normal Clean • Print Sample • Long Clean
Print Test Page	• PS Test Page • GL Test Page • Color Sampler • PS 2 Fonts

The operator or service person can use these test procedures without entering Controller Diagnostics or Service Adjustment modes.

Test Print A

Test Print A prints a sample of machine settings and lines of color in varying densities, and also drives the printer extensively.

The printer completes the test on one sheet of 215.9 by 279.4 mm (8-1/2 by 11-inch) paper, then returns to the menu mode.

After you complete any repairs, run the print sample several times to ensure that the printer is operating correctly.

To start Test Print A for 4079-001:

1. Make sure paper is loaded in the machine and the printer is off-line.
2. Press **Menu** twice. “Test Menu Clean Heads” is displayed.
3. Press **Select**.
4. Press **Menu** until “Print Test Page = PS Test Page” is displayed.
5. Press **List+** to move through the menu until “Test Print” is displayed. (Use **List -** to scroll backward through the menu.)
6. Press **Select** when “Test Print A” is displayed. The display reads “06 Print Test” and printing is started.

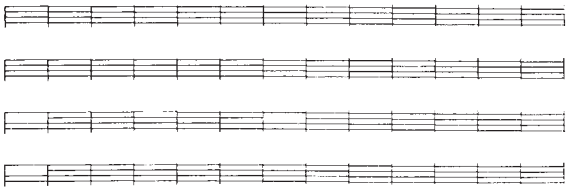
After the test print has printed, the printer returns to menu mode.

Print Sample

The Print Sample prints a short line from each nozzle, which shows if any nozzles are clogged. To start the print sample:

1. Make sure paper is loaded in the machine and the printer is off-line.
2. Press **Menu** twice. “Test Menu Clean Heads” is displayed.
3. Press **Select**
4. Press **List+** to move through the menu until “Print Sample” is displayed. (Use **List -** to scroll backward through the menu.)
5. Press **Select**. The display reads “06 Print Test” and printing is started.

After the nozzle check is printed, the printer returns to the menu mode.



In this example, some of the nozzles are clogged, resulting in a void in the print. You would run the head clean procedure, then run the print sample again.

Printhead Cleaning Procedures

These procedures clean out the ink lines during diagnostic procedures or after new ink parts have been installed.

Normal Cleaning

This head cleaning procedure takes about 15 seconds. After cleaning the heads, run the nozzle check or Test Print A to check print quality.

Long Cleaning

Use this procedure when the heads are still clogged after running normal cleaning. Use this procedure only when necessary, because much ink is used.

Printing Mode

The operator can choose between five printing modes. If the correct mode is not in use, print quality can be poor. Select the mode most appropriate for the type of paper in use, as well as the type of printing (text, graphics and so on).

Quality This is the default mode, designed for printing on coated paper.

Transparency Use for printing on transparency film.

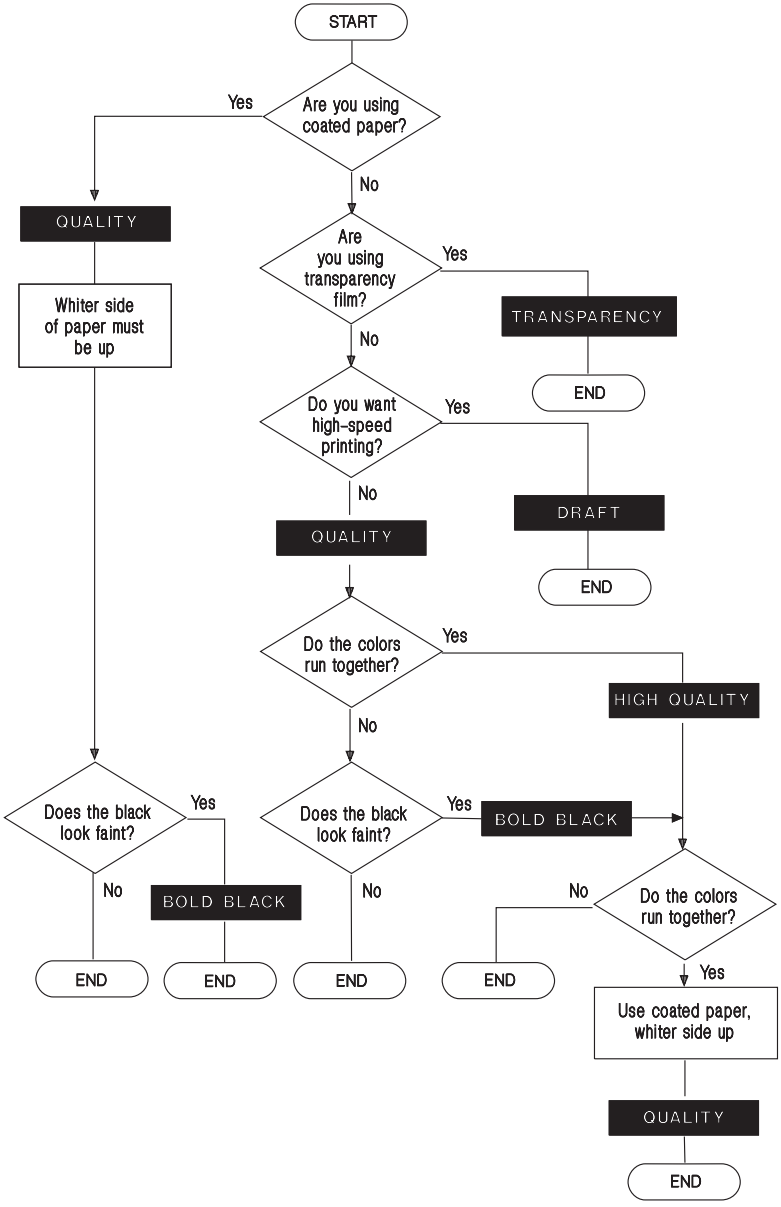
Bold Black Prints bolder black than Quality mode. Use when darker black is needed.

High Quality Use for printing graphics or colors on paper other than the recommended coated paper, and when ink starts to run together seriously. Requires longer print time than Quality mode.

Draft mode, for fast printing. Not available when proportional character spacing has been selected.

Note: If the wrong side of the coated paper is used, colors will converge on the page. The whiter side must be facing up for correct color printing.

Follow this chart to choose the correct print mode.



Power-on Self Test (Post)

When the printer power is turned on, the following sequence of events takes place. You may have to watch carefully to see all that is happening during POST, but generally a completed POST indicates that there were no failures during the sequence.

1. All indicators are lit (Ready, Buffer, and Check).
2. Purge motor runs.
3. 4079-001 - Rectangular blocks (pels) appear on first line of display, progressing across the display. 4079-002 - Display shows “05 Self Test”.
4. Head capping mechanism is lowered, uncapping the heads. Purge unit may pump ink through waste ink lines.
5. Purge motor stops running.
6. 4079-001 - Pels appear on second line of display. 4079-002 - Display shows “05 Self Test”.
7. Carriage moves to far-left position.
8. Carriage moves about one-fourth of the way to the right.
9. Head wiper rises to clean the heads; purge motor runs.
10. Carriage returns to the far left position.
11. Head wiper returns to lowered position.
12. Paperfeed rollers rotate, slowly at first, then faster.
13. 4079-001 - “04 Reset” appears on first line of display; all indica tor lights are off. 4079-002 - Display shows “05 Self Test”.
14. Purge motor begins running.
15. Head capping mechanism rises, lifting and capping the heads.
16. Purge unit suctions ink from printheads and pumps ink out through waste ink lines. Display may show “01 Busy” briefly.
17. “00 Ready” is displayed; Ready indicator is on.
18. Head capping mechanism is lowered, allowing the carriage to return to normal position.
19. Purge motor stops running.
20. Carriage moves about one-fourth of the way to the right.
21. Head wiper rises; purge motor runs.
22. Carriage returns to far left position.
23. Head wiper lowers; purge motor stops running.
24. Purge motor begins running.
25. Head capping mechanism rises, lifting and capping the heads.

26. Purge unit suctions ink from printheads and pumps ink out through waste ink lines.
27. Head capping mechanism is lowered, allowing the carriage to return to normal position.
28. Purge motor stops running.
29. Carriage moves about one-fourth of the way to the right.
30. Carriage returns to far left position.
31. Head wiper lowers; purge motor stops running.
32. One short beep is heard. This beep may be very faint when the controller board is installed.

NOTE: After the printer sits idle for approximately 15 seconds, the heads are automatically capped and a star (*) appears in the display. Do not turn off the printer for long periods of time until the heads are capped and the star (*) appears in the display.

Controller Diagnostics

This mode is used by service persons to isolate failing FRUs and make adjustments to the printed page.

To enter Controller Diagnostics, press and hold **Menu** and **Print Buffer** while turning on the printer. After the POST is complete, the first item in the Controller Diagnostics menu is displayed.

Controller Diagnostics Menu

Menu Item	Value
Diagnostic Tests	Paper Load Test Wrap Test Button Test LED Test LCD Test RAM Test
Last Error	Service code, or Clear
Print Test Page	Test Print A or B
Clean Heads	Normal Clean Print Sample Long clean Refresh
Software Version	Engine, and Controller
Disk Menu (4079-002 only)	Quick Disk Test Disk Test Format Disk
Defaults	U.S. or Non-U.S.

Paper Load Test

Select Paper Load Test from the menu to start the continuous paper load test. A sheet of paper is loaded into the printer, a line is printed across the top of the page, and the page is ejected. The test is repeated until you press the **Menu** button. One more sheet is fed, then the menu advances to the next item.

Printer Wrap Test

This tests the serial/parallel communications interface and displays a message on the display. To perform the wrap test:

1. Turn the printer off.
2. Disconnect the parallel or serial interface cable.
3. Install the wrap plug.
4. Press and hold the **Menu** and **Print Buffer** buttons while you turn on the printer.
5. Select Wrap Test from the menu.

The test runs continuously until you press the **Menu** button. A message is displayed indicating if the test passed or failed.

Button Test

Select Button Test from the menu. When any button except the **Menu** button is pressed, the display indicates “Closed.” The display indicates “Open” if no button is pressed or if the button is not operating correctly. Press **Menu** to return to the menu.

LED Test

Select LED Test from the menu. The Ready LED is on and a cursor is displayed. Each time **List+** is pressed, the current LED is turned off and another LED is turned on. Press **Menu** to return to the menu.

LCD Test

Select LCD Test from the menu. Each pel of the display is turned on. Press the **List+** button to display a different diagnostic pattern. Press **Menu** to return to the menu.

RAM Test

Select RAM Test from the menu to verify the DRAM on the controller board. The display shows the amount of memory in each SIMM, or shows a failure of the SIMM in either slot 1 or slot 2.

Last Error

Select Last Error to display the last error stored in memory. You can also clear the error codes stored in memory by selecting Clear.

Print Test Page

You can print Test Print A or B from this menu, rather than going back to the Operator menu.

Clean Heads

Similar to the operator menu options, but with the addition of the Refresh option, which uses a greater quantity of ink to refresh the printer ink system. This procedure should be used whenever an ink line is replaced.

Quick Disk Test

Selecting this test will run a disk test that will perform a non-destructive read/write on one block per track on the disk. (4079-002 only)

Disk Test/Clean

Selecting this test will display the amount of unusable disk areas. (4079-002 only)

Format Disk

Use this test when formatting a new hard disk. (4079-002 only)

Software Version

Use this option if you need to know the software level of the various components in the printer.

Defaults

Use this option whenever the controller board is replaced to make sure the national defaults are set correctly. The only value currently affected is paper size, which is different for non-U.S. users.

Service Adjustment Mode

In Service Adjustment Mode, adjustments can be made to the offset of the color ink jets relative to each other, and several cleaning modes can be entered.

Details on the Service Adjustment Mode are in “Adjustments” on page 4-2.

To enter Service Adjustment Mode:

1. Make sure the printer power is off.

2. Press and hold **Menu** and **List+** while turning on the printer. You can release the key when the “04 Reset” (4079-001) or “05 Self Test” (4079-002) is displayed.

- “Read” is displayed on the first line of the display and the second line has a checkered pattern.
- Press **Select** to exit Ready mode.
- Pressing **List+** will scroll through the menu.

The adjustments that can be made in this mode are listed in“Adjustments” on page 4-2.

4. Repair Information

This chapter contains adjustments and removal procedures. Whenever parts are replaced, make sure that all adjustments are correct by running diagnostics procedures and checking adjustments as needed.

Lubrication Requirements

Use Grease (part 1321875) on the following parts as needed:

- All shaft holders
- The shaft hole of eject roller, pickup roller, and paperfeed roller on the right frame.
- The gears on the right frame.
- The clutch spring of pickup roller unit.
- The clutch cam of pickup roller unit.
- The worm gear of purge motor.
- The contact part of pinch roller base.
- The carriage shaft.

Do not over-grease the parts, but make sure new parts have adequate lubrication.

Handling ESD-Sensitive Parts

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, follow the instructions below in addition to all the usual precautions, such as turning off power before removing logic boards:

- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.

- Put the ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the machine.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch its pins. If you are unplugging a removable module, use the correct tool.
- Do not place the ESD-sensitive part on the machine cover or on a metal table; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Machine covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install machine covers when you are not working on the machine, and do not put unprotected ESD-sensitive parts on a table.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Be extra careful in working with ESD-sensitive parts when cold-weather heating is used because low humidity increases static electricity.

Adjustments

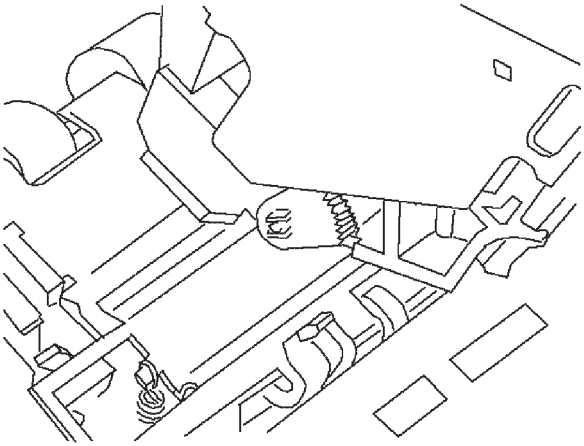
Head Gap Adjustment

The head gap must be adjusted as needed, but always in the following cases:

- When the head gap adjustment shaft is replaced
- When the carriage ink supply unit is replaced
- When the carriage frame is replaced
- When the carriage frame right or left plate is replaced
- When the platen is replaced
- When the right or left printer frame is replaced
- If the setting of the head gap adjustment is accidentally changed.

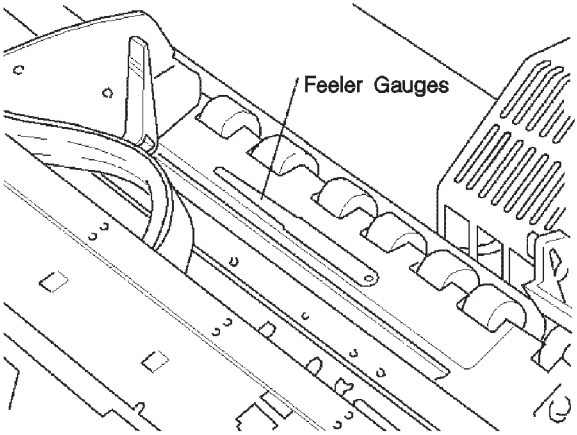
Follow this procedure to adjust the head gap:

1. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9.
2. Unplug the power cord from the AC outlet.
3. Remove the paper guide, top cover, and inner cover.
4. Set the printhead position lever to position 1 (normal position).
5. Using a flat-blade screwdriver, turn the head gap adjustment (on the left side of the carriage) clockwise until the right-most click is reached. The head gap is minimum at this position.



6. Move the carriage to the left (home) position.
7. Remove feeler gauges from the feeler gauge set to make a thickness of 1.7 mm (0.066 in.).

8. Hold the gauge on the recessed portion of the platen, left side.



9. Using the carriage belt, move the carriage over the feeler gauge.
10. Adjust the head gap so that the carriage does not touch the feeler gauge as it passes over. Turn the head gap adjustment one click at a time until the carriage clears the feeler gauge with the least possible clearance.
11. Check the adjustment in the middle and at the right side of the platen, adjusting the head gap for the least clearance at the highest point without touching the feeler gauge.

Service Adjustment Mode

The print position adjustments must be made in Service Adjustment mode. Service Adjustment Mode also allows you to run test prints and cleaning cycles. These functions are described in the table on the following page.

To enter Service Adjustment Mode with the control board installed:

1. Turn off the printer and wait a few seconds.
2. Press and hold **Menu** and **List+** as you turn on the printer. You can release the keys when the reset is displayed.
3. Press **Select** to exit Ready mode.
4. Press **List+** to scroll through the menu items.
5. Press **Print Buffer** to reset the printer or exit from any menu.

If **Black Offset** is not seen as a menu item, you may not have entered Service Adjustment mode. Turn off the printer, wait a few seconds, and try the procedure once more.

To enter Service Adjustment mode with the control board removed.

1. Turn off the printer and wait a few seconds.
2. Press **Menu** + **List+** as you turn on the machine.
3. When the square boxes are approximately half way across the display, release the keys and press and hold **Select** while you press **Start/Stop** twice. You must complete this sequence and release the keys before the square boxes complete their sequence across the display.
4. Press **Select** to exit Ready mode.
5. Press **List+** to scroll through the menu items.

If **Black Offset** is not seen as a menu item, you may not have entered Service Adjustment mode. Turn off the printer, wait a few seconds, and try the procedure once more.

The menu in Service Adjustment Mode shows the following items:

MENU ITEM	DESCRIPTION
Black Offset	Used as a standard for the other colors
Cyan, Magenta, and Yellow	Adjust using Print Position Adjustment procedure
Direction Offset	Set the black print for printing in both directions.
Test Print	Test Print A - short test pattern Test Print B - test color mixing, evenness Test Print C - print position check, all possible settings shown Test Print D - printhead settings shown Heat Run - test paperfeed mechanism without printing

Cleaning	Cleaning A - normal clean Cleaning B - long clean Cleaning C - fills new tubing, using approximately 4 grams of each color ink Cleaning D - flushes the tubes thoroughly, using 4.5 grams of each color ink
Center Head	Centers the carriage and upcaps the heads **Note:** Turn power off when the carrier moves to the center of the machine.

Print Position Adjustment

The registration of the four color printheads must be checked:

- When any of the printheads are replaced
- When the carriage ink supply unit is replaced
- When the head cover is replaced
- When the logic board is replaced
- When the carriage card is replaced.

Follow this procedure to adjust the printing position. Refer to the print sample on the following page as necessary.

1. Enter Service Adjustment Mode. To run a test print in Service Adjustment mode:

    a. Press **Select** to turn off the Ready indicator (press **Print Buffer** if the Ready indicator is off and you need to exit from any submenu).

    b. Press **List+** until Test Print is displayed.

    c. Press **Start/Stop** to display the list of print tests.

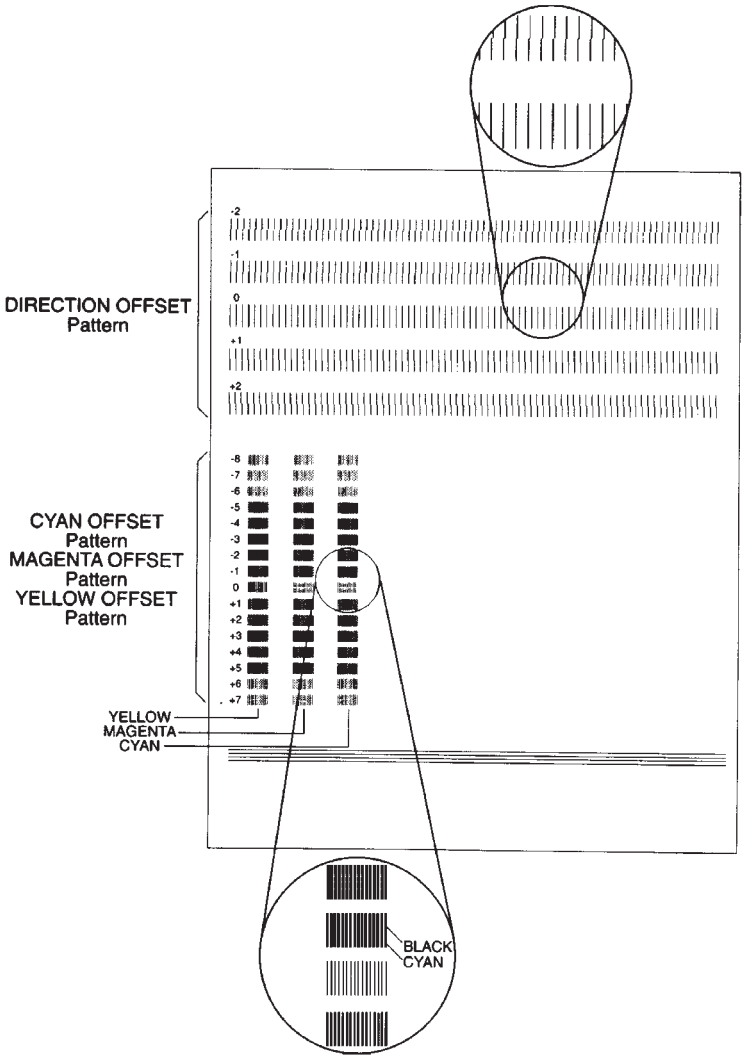
    d. Press **List+** until Print Test D is displayed.

    e. Press **Start/Stop** to run Test Print D.

2. Run Test Print D. Test Print D shows the current offset values for the printhead nozzles.
3. Run Test Print C.

4. Circle the print portion that shows the best offset values, using the magnifier to view the test print, if necessary. The best selection is when the two colors appear closest to being one line.

Note: Do not adjust the black offset value. It is used as a standard, and the other nozzles are adjusted to it.



5. Adjust the offset values for the cyan, magenta, and yellow nozzles. The values circled on Test Print C result in the best print quality. For example, yellow value might be +1, magenta -1, and blue 0.

    a. Press **Select** to turn off the Ready indicator (press **Print Buffer** if you need to exit from any submenu).

    b. On the Service Adjustment menu, press **List+** until the offset value that needs to be adjusted is displayed.

    c. Press **Start/Stop** to select the color offset value to be adjusted.

    d. Press **List+** to move to the next color offset value (or press **Menu** to move back in the list)

    e. Press **Start/Stop**. The values are set in NVRAM until they are changed again using this procedure. A beep sounds when the settings are saved.

6. Adjust the direction offset value, using the upper pattern on the test print for comparison. Select the value giving the least shift on the test print.
7. Run Test Print C to check the color and offset of the printhead nozzles. See "The registration of the four color printheads must be checked:" on page 4-6 for instructions on running test prints.

If you set a value incorrectly, or want to refine the setting, select the setting you want to change on the menu, and go through the adjustment procedure again.

Exiting Service Adjustment Mode

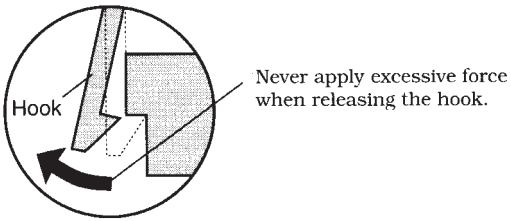
To exit Service Adjustment Mode, turn off the printer.

Note: After using Service Adjustment Mode, you should run a long cleaning cycle from the operator Clean Heads menu.

Service Information

Releasing Plastic Latches

Many of the parts are held in place with plastic latches. To remove such parts, press the hook end of the latch away from the part to which it is latched.



Warning: Never use excessive force to release the latches. they are easily broken.

Ink Tube Servicing

Because ink contains permanent dyes, observe the following when servicing ink tubes:

- If possible, move the printer to a suitable service area where any possible damage from ink spillage will be minimized.
- Cover the table with the drop cloth before servicing the printer.
- If any part of the ink tube system is disconnected, the ink will leak.
- Use paper towels or plastic bags to cover the ink tube ends, secured with rubber bands. The ink contains permanent dyes and will stain clothes or furniture.

Printhead Uncapping and Carriage Centering

It is necessary to uncap the printheads and move the carriage to the center before servicing several of the parts. (If the printer has no power connected, follow “Manual Carriage Centering (No Power).”)

1. Switch on the printer.
2. As soon as the carriage moves from the home position, switch off the printer.

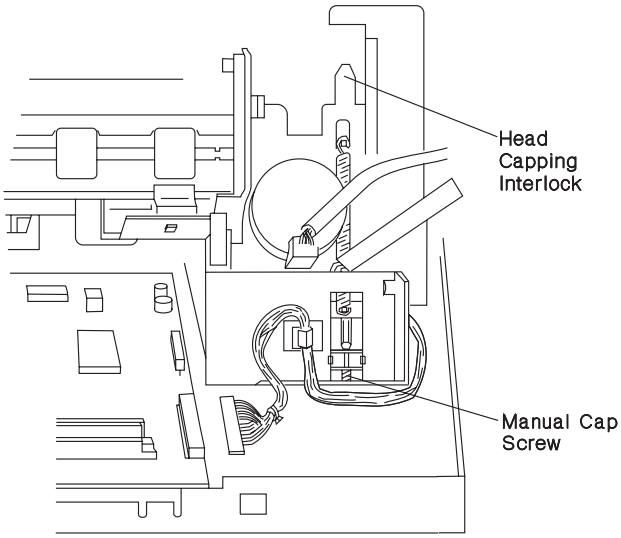
The printheads are now uncapped. The carriage can now be moved as needed for servicing. The printheads should not be left uncapped overnight.

Manual Carriage Centering (No Power)

If the printheads were manually capped, reverse the procedure in “Manual Printhead Capping (Disabled Machine)” before attempting to move the carriage.

To center the carriage when there is no power:

1. Press down the head capping interlock on the rear of the purge unit.

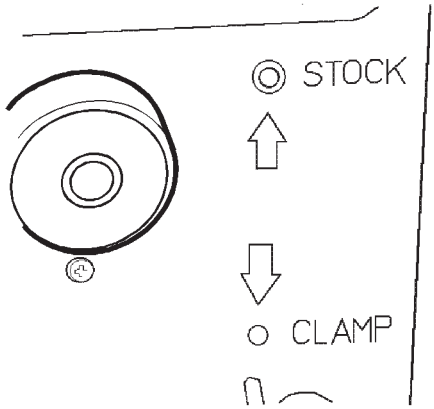


2. Firmly push the carriage away from the purge unit. The printheads are now uncapped. They should not be left uncapped overnight.

Manual Printhead Capping (Disabled Machine)

If there is no power to the machine and the printheads must be capped, follow this procedure.

Remove the screw from the hole marked Stock in the base and insert it in the hole marked Clamp.



As the screw is tightened, the capping mechanism is raised and the printheads are capped.

Warning: You must remove this screw before the machine can be used under power or to uncap the printheads for servicing.

Removal Procedures

The removals in this section are arranged in alphabetical order.

It is assumed that the machine is turned off, power cord is unplugged, and the covers are removed before starting these procedures. (See “Cover Removals” on page 4-28).

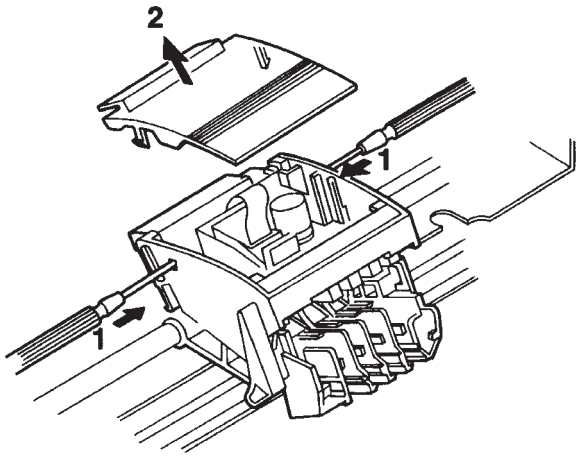
To install parts, reverse the removal procedure, giving attention to any special conditions listed.

Carriage Card, Carriage Card Holder Cover Removal

1. Remove the covers.
2. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9).
3. Remove the printhead cover and the printheads.
4. Remove the carriage card holder cover:

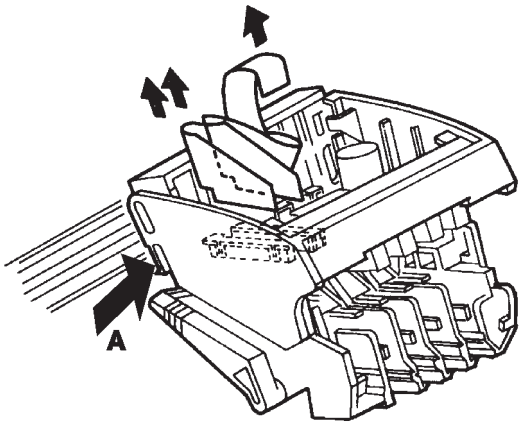
   Carefully push the small latches (**1)** on both sides.

   Lift off the carriage card holder cover (**2)**.



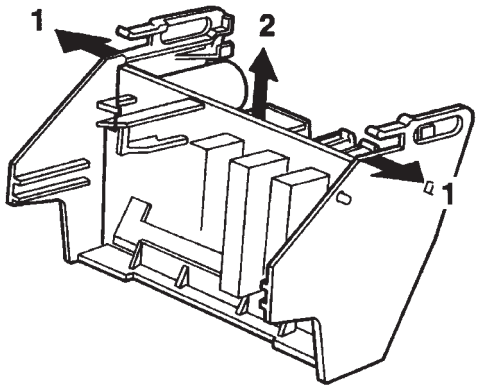
5. With a small screwdriver, lift the beige connector latches and detach the carriage card cables. All three ribbon cables are different sizes. The print timing encoder and the paper width sensor are both connected to the same ribbon cable.

6. While flexing the carriage card holder latches **(A)**, lift out the carriage card holder and card.

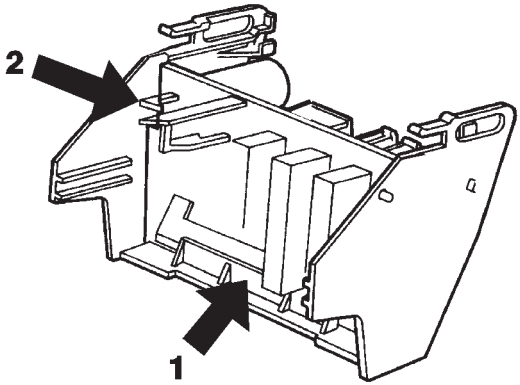


7. Remove the carriage card (Asm. 9-8) from the holder by flexing both sides of the holder outward and pulling the card from its mounting groove.

.

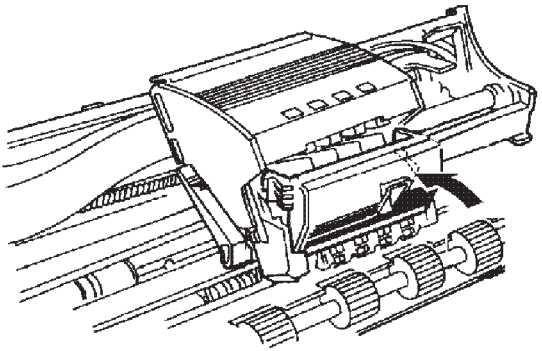


Installation Notes: When you install the carriage card, first make sure the card is seated in the front of the card holder (**1**), then rotate the card backward until it locks in place behind the guides (**2**), only one of which is shown.

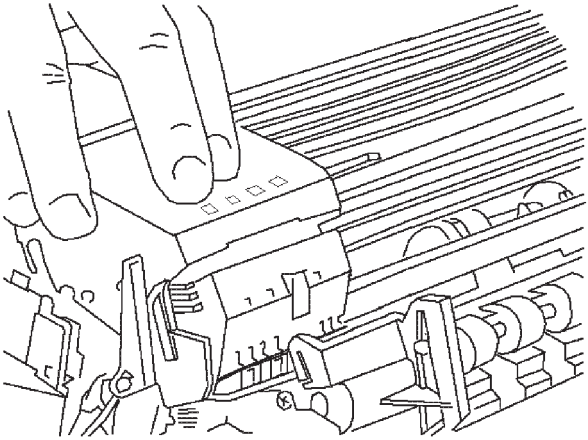


When replacing the printhead cover:

1. Use the drive belt to move the carriage to the end away from the purge unit.
2. Use the lower hook to attach the cover. Align the slots and tabs on each side of the cover, and watch the position of the green printhead position lever.



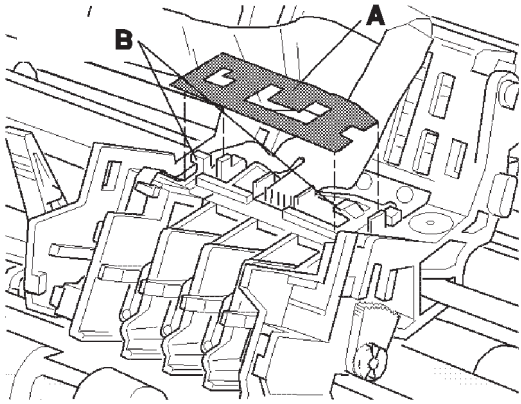
3. Squeeze both side latches and push the cover all the way into position. If the head cover is not in position, it can cause a bumping noise during print operation.
4. Push down on the carriage cardholder cover to engage the printheads.



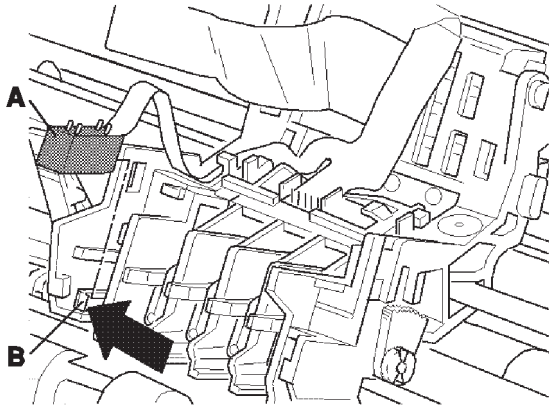
Carriage Encoder And Paper Width Sensor Removal

1. Remove the covers.
2. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9.
3. Remove the print timing slit from the carriage.
4. Remove the printheads.
5. Remove the carriage card.
6. Remove the encoder cover (**A**).

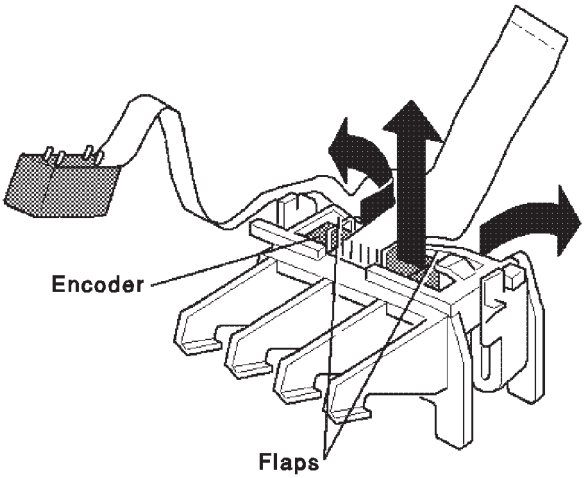
7. Remove the white encoder holder by pushing both side latches (**B**) toward the center, while lifting up and removing the encoder holder.



8. Place a small screwdriver behind the paper width sensor (**A)** and push it out while releasing the latch (**B**).

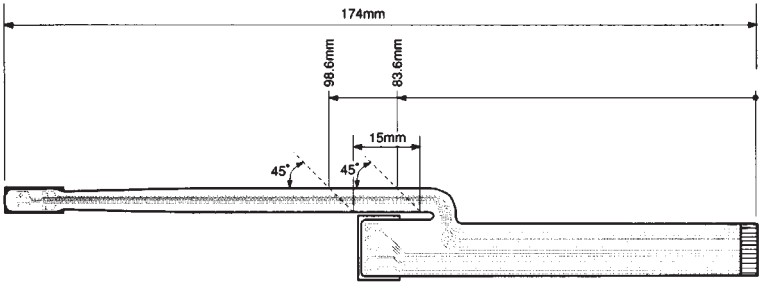


9. Remove the encoder from the holder by prying the holder apart. The encoder holder flaps have tabs which fit into holes in the encoder.

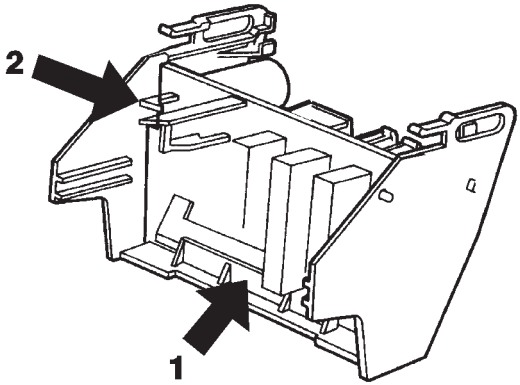


Encoder Cable Handling

When replacing the encoder unit, bend the flexible cable at the specified position.



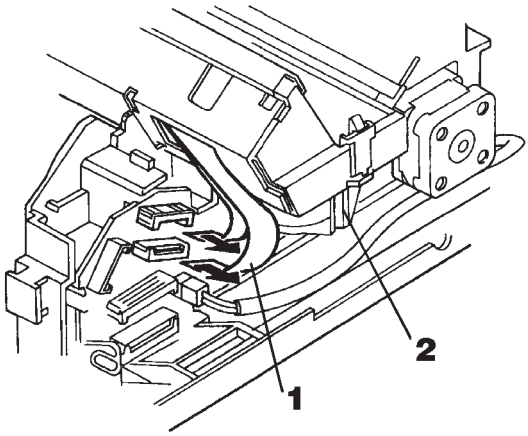
Installation Note: When installing the carriage card, first make sure the card is seated in the front of the card holder (**1)**, then rotate the card backward until it locks in place behind the guides (**2)**, only one of which is shown.



Carriage Frame Removal

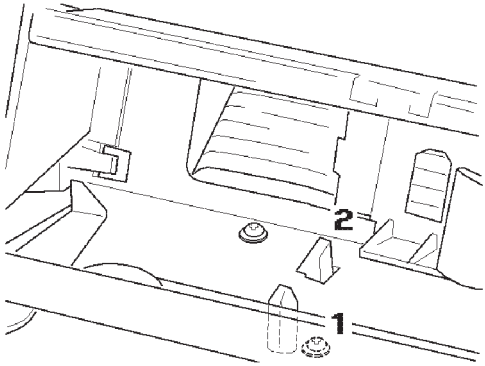
The carriage frame (with the carriage and carriage drive installed) can be tilted away from the printer to allow servicing of other parts without removing the carriage or disconnecting the ink tubes.

1. Remove the covers.
2. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9).
3. Remove the operator panel and base.
4. Disconnect the carriage frame ground wire on the right side of the carriage frame.
5. Disconnect the carriage cables (**1)**.
6. Disconnect the carriage motor cable (**2)**.



7. Remove the two screws (**1)**, one near each end of the carriage frame.

8. Release the latches (**2)**, one near each end of the carriage frame, and lift off the carriage frame.



9. Lay the frame upside down at the front or left side of the printer. In this position, the carriage motor should be on top, which will prevent the drainage of ink if the printheads are removed.

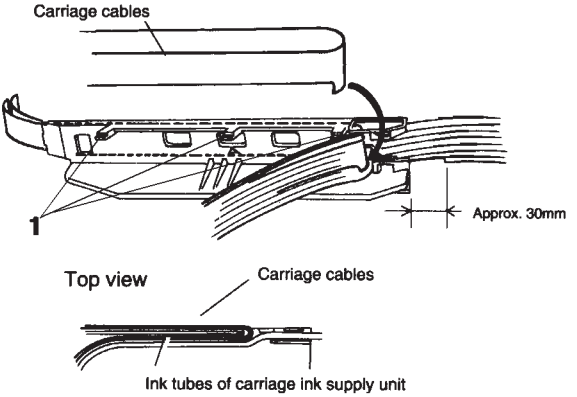
- Leave the ink tubes connected, if possible, to prevent ink leakage.
- Be careful not to kink the ink tubes, which may restrict ink flow.
- Remember that the exposed printheads can be easily damaged and that the ink contains permanent dyes.

Carriage Ribbon Cables Removal

The carriage cables can be removed without removing the carriage.

1. Remove the covers.
2. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9).
3. Remove the operator panel and base.
4. Lift the beige connector latches and then disconnect the orange/brown carriage ribbon cables from the right connector card.
5. Remove the carriage card cover.
6. Disconnect the carriage ribbon cables from the two connectors on the carriage card.

7. Release three latches (**1)** from the front side of the carriage frame and remove the ink tube guide from the carriage frame.

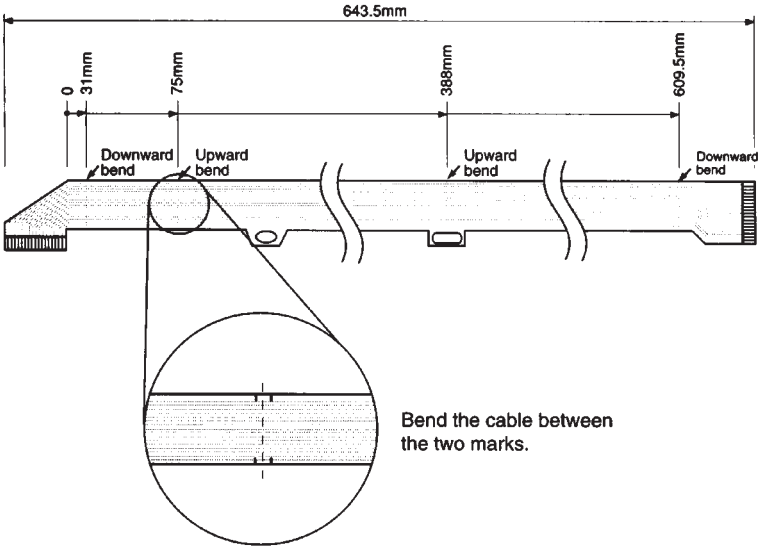


Note how the cables are folded and routed through this guide.

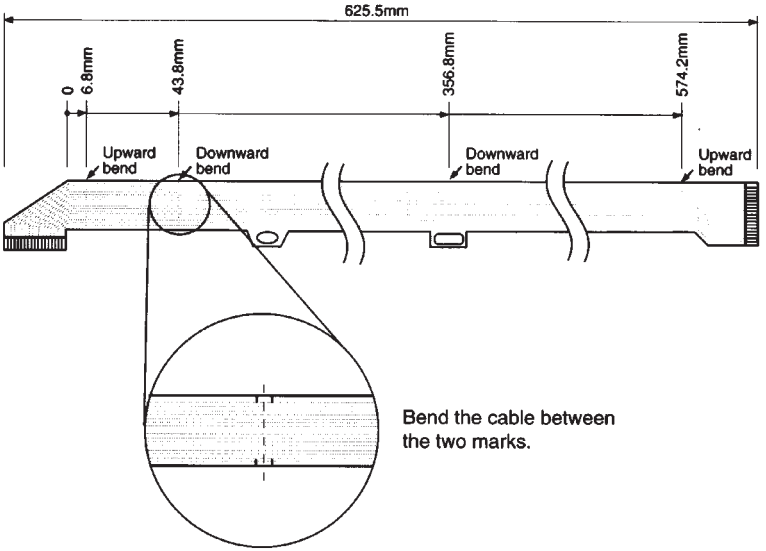
Carriage Cable Handling

When installing the carriage cable, install the cable on the ink tube guide, and bend it at the specified position.

Carriage cable 19 pin



Carriage cable 20 pin

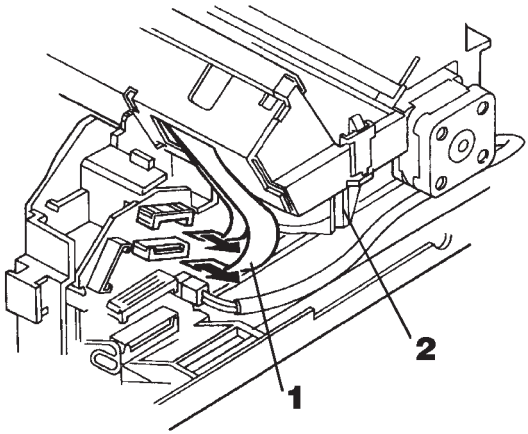


Carriage Shaft, Belt, And Ink Supply Removals

It is normally not necessary to remove the carriage except to replace the carriage belt, or to replace the carriage and ink supply assembly.

Warning: If possible, move the printer to a suitable service area, and cover the table with the drop cloth before servicing ink tubes or the purge unit.

1. Remove the covers.
2. Center the carriage (see “Printhead Uncapping and Carriage Centering” on page 4-9.
3. Remove the operator panel and base.
4. Remove the print timing slit from the carriage.
5. Disconnect the carriage cables (**1)** and the carriage motor cable (**2)**.

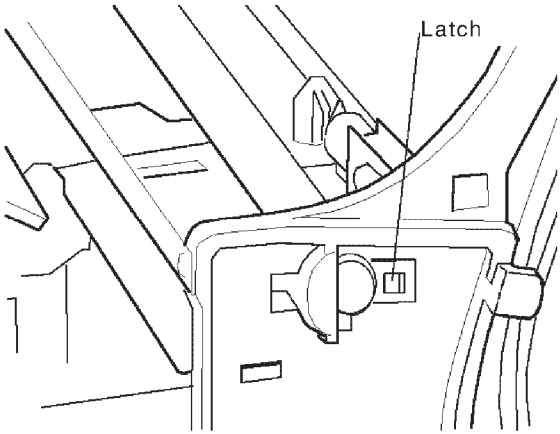


6. Remove the carriage shaft:

   a. Push the latch on the left end of the shaft and remove the shaft stopper. Be careful not to use excessive force.

.

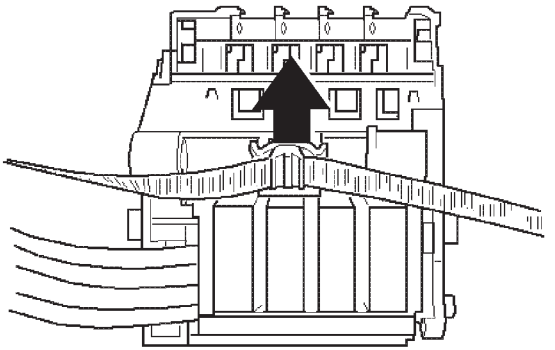
   b. Push latch on the right end of the shaft to release the carriage shaft.



   c. Pull the shaft out of the machine.

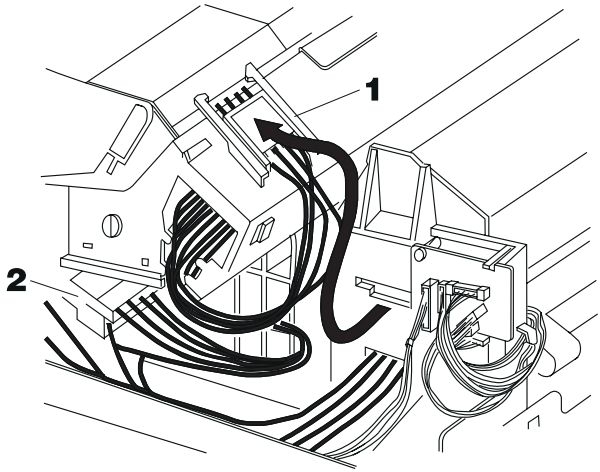
7. Remove the carriage belt from the carriage drive motor pulley by loosening the idler pulley mounting screw and pushing the pulley to the right.
8. Carriage Belt removal: If you are replacing the carriage belt, carefully turn the carriage over and disconnect the carriage belt clamp. Be sure to place a packet of paper towels or cloth under the carriage head before turning it over.

.



9. Carriage Ink Supply removal: Disconnect the ink tubes (**1)** running from the carriage to the purge unit. Use cloth or plastic bags to cover the open ink tube ends, secured with rubber bands, to lessen the chance of ink spillage.

10. Disconnect the ink lines from the carriage to the ink cartridge assembly (**2)** and hook the drain joint holder in the holes provided on the carriage frame.



11. Remove the carriage card holder cover.
12. Disconnect the two carriage ribbon cables and slide the cables out of the carriage.
13. Remove the carriage card holder and the carriage card.
14. Remove the encoder and paper width sensor assembly.
15. Separate the ink joint holder from the end of the ink supply joint. When possible, wrap ends of ink lines in a cloth or packet of paper towels and secure with a rubber band to prevent ink spillage.
16. Carefully feed the tubes through the side frame and remove the carriage ink supply assembly. Be aware that the ink can stain clothing and furniture.

Note: Keep the ink supply assembly level to prevent ink leaking from the printhead connections. Discard the ink supply in a plastic-lined waste can or heavy plastic bag.

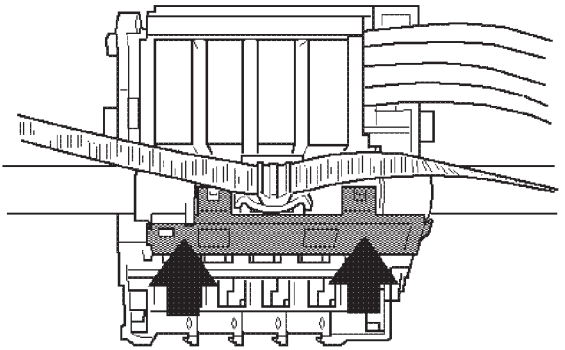
Installation Notes: When replacing the carriage ink supply or carriage frame:

1. Check the “Head Gap Adjustment” on page 4-2.
2. Check the “The registration of the four color printheads must be checked:” on page 4-6.

3. Perform printhead cleaning until all ink lines and subtanks are filled.

When replacing the carriage shaft:

1. Remove the carriage shaft guide from the bottom of the carriage.
2. Insert the carriage shaft into the carriage (the notched end must be to the left side).
3. Turn the carriage over and snap the carriage shaft guide into place.



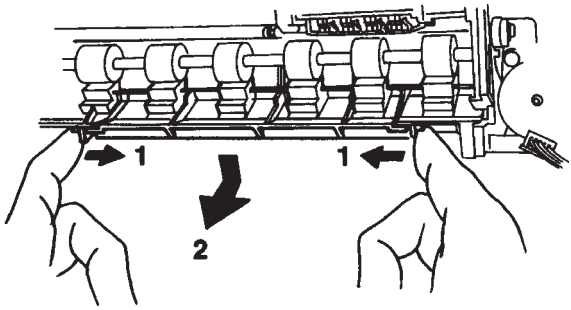
4. With the carriage upright, slide the carriage shaft into the right end plate, then the left end- plate. The carriage shaft snaps into place in the latch on the left end plate.

Controller Board And Logic Board Removal

1. Remove the covers.
2. Disconnect the power supply connector from the controller board.
3. Remove the screws from the controller board and remove the board.
4. Remove the card cover:

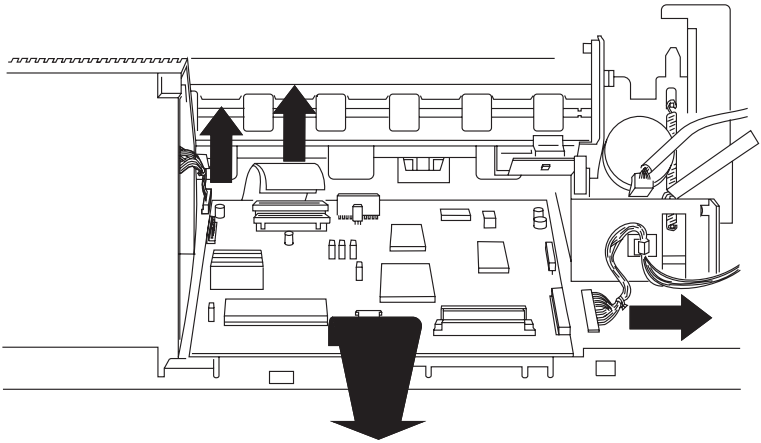
    a. Release latches (**1)** while pushing down the right side of the card cover.

b. Pull the cover down and outward.



5. Remove the controller board bracket (3 screws).
6. Remove the screws from the logic board and pull the board out part way.

.

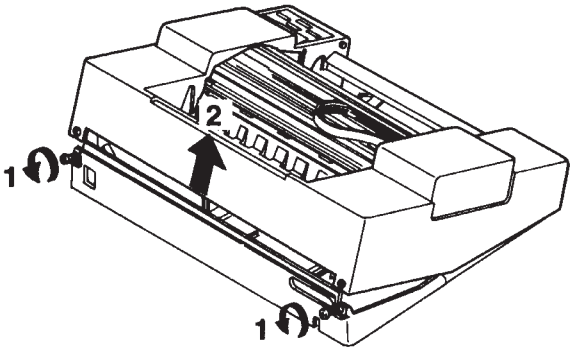


7. Disconnect the ribbon cables and connectors.
8. Pull out the logic board. Note that the front of the board is held by metal grounding clips. You will need to pull firmly to remove the board from these clips.

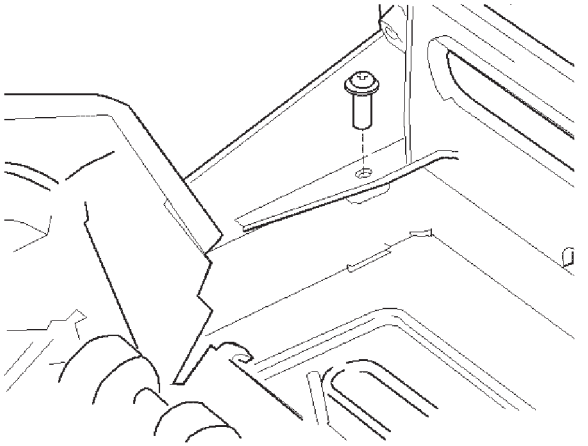
Cover Removals

1. Disconnect the line cord and printer cable from the printer.

2. Remove the printed paper guide by pulling it up and out of the machine.
3. Remove the front cover and the inner cover.
4. Remove the two cover screws (**1)**.



5. Remove the top cover (**2)**, lifting rear to front. The front of the cover is held by plastic hooks.
6. To remove the rear cover, remove the two rear cover mounting screws, one in each rear corner (only one is shown).

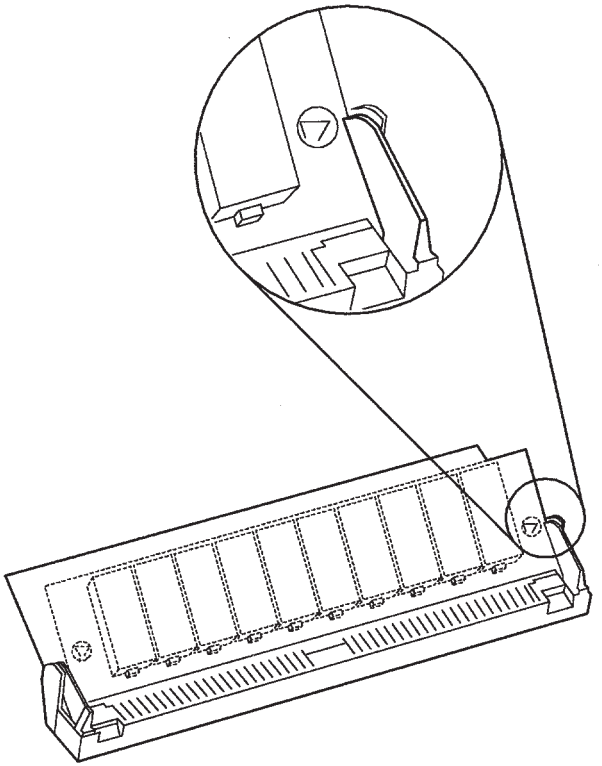


7. Move the rear cover to the rear slightly. Flex the sides outward and tilt the cover back, then lift the rear cover off the machine.

Electronic Modules

Memory SIMMS and the control card EPROM plug into the controller board and lock into place.

Release the latches as shown to remove the modules.



When installing a module, make sure the latches click into place.

Hard Disk Removal

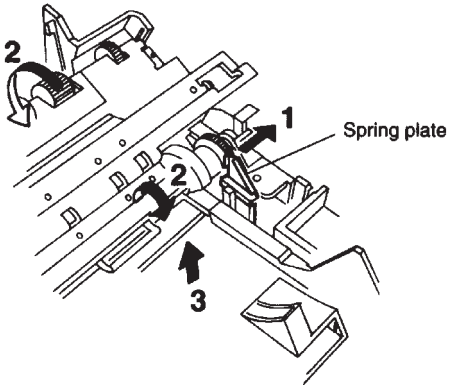
1. Remove the covers.
2. Remove the hard disk and hard disk interface card assembly.
3. Remove the hard disk from the interface card.

Ink Cartridge Assembly Removal

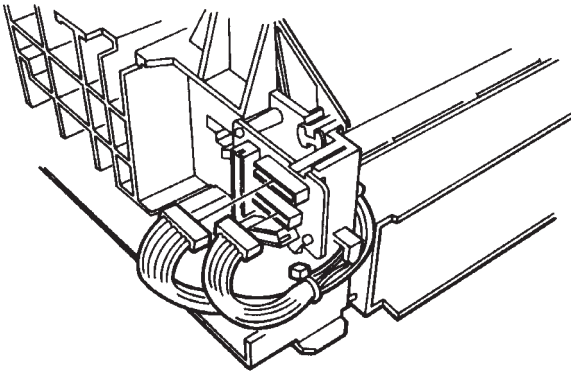
1. Remove the covers.
2. Be sure the paper lifting plate is in its raised position:

    a. Move the spring plate (**1**) to the right. It is accessible at the right end of the carriage frame under the carriage shaft. The carriage frame is shown removed for illustration purposes only

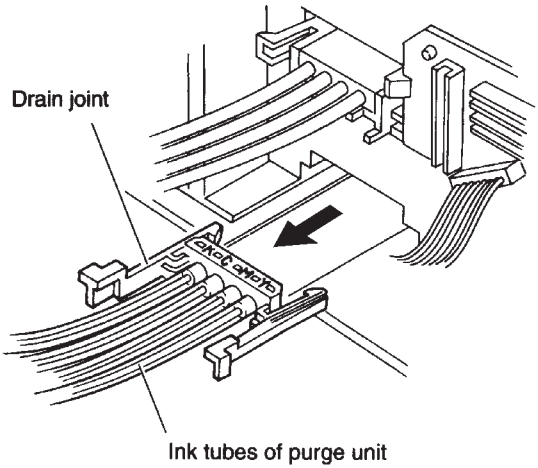
    b. While holding the spring plate, rotate the picker roller (**2**) in the direction of the arrow. The paper lifting plate (**3**) rises.(**3**).



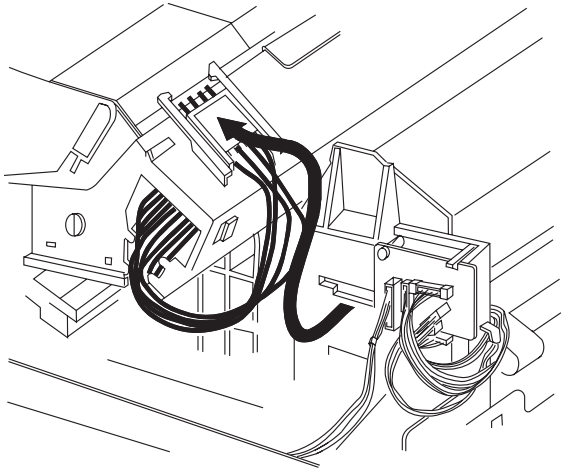
3. Disconnect the two connectors from the left-side connector card at CNINK and CNID.



4. Disconnect the purge ink waste tubes from the side frame. Wrap the end of the tubes in cleaning cloth, secured with a rubber band, to prevent ink spillage.

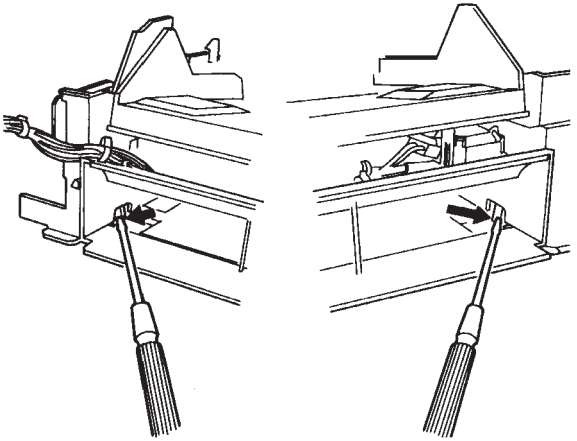


5. Disconnect the carriage ink supply joint from the side frame and hook it to the top of the carriage frame, as shown below.



6. Remove the ink cartridges. Lay them in a safe place where they will not stain furniture or clothing. The ink cartridges are color-coded and can only be installed in their correct positions.

7. Use a flat-blade screwdriver to release the left latch while lifting the unit slightly. The bottom of the unit is set into two offset posts attached to the bottom pan.

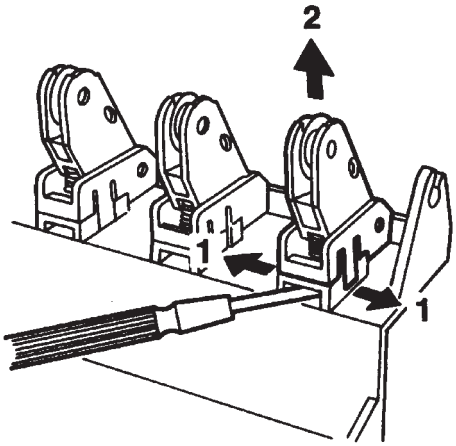


8. Release the right latch as you lift the unit, and slide the unit out of the machine.
9. Insert the ink cartridges into the ink compartment. Wrap a cloth over the connector end and secure with a rubber band. Place the cartridge assembly on a level plane with the black cartridge end slightly elevated to prevent ink leakage.

Note: If you work on the ink compartment with the cartridges removed, drain the ink compartment by tilting the connector end (black cartridge end) into a plastic-lined waste can until all ink is drained out. Wipe end of connector with a cleaning cloth.

Inner Cover Spur Unit Removal

1. Remove the inner cover.



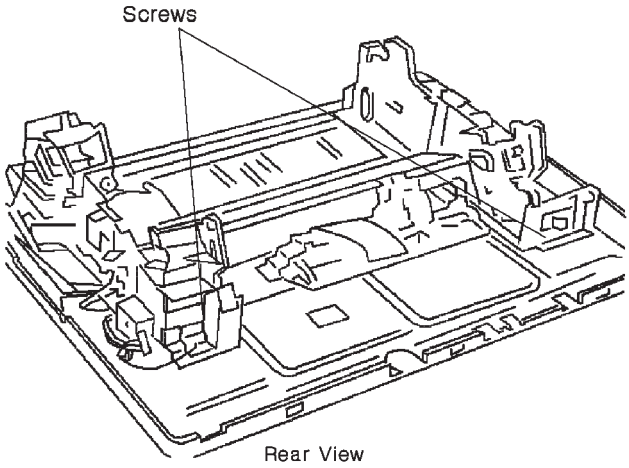
2. Insert a screwdriver under the spur unit and spread the latches to the sides as shown. Be careful not to use excessive force on the plastic latches.

Lower Frame Removal

If it is necessary to remove the white ribbon cables or the motor cables, follow this procedure. Make sure the following parts are removed: Operator panel, operator panel base, controller board, power supply.

1. Remove the covers.
2. Remove the operator panel and base.
3. Remove the controller card.
4. Remove the power supply.
5. Disconnect the motor cables, system cables, and logic board cables

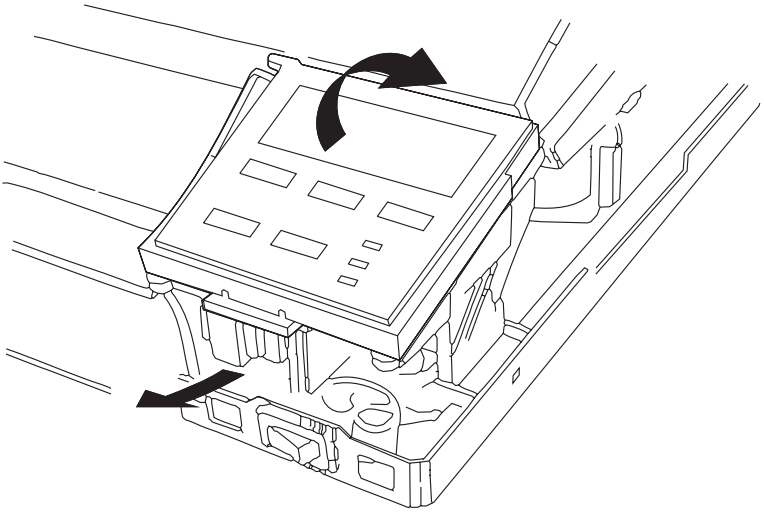
.



6. Remove the two screws holding the lower frame in place.
7. Tilt the frame up in the rear, move it back slightly.
8. Lift the frame off the base plate.

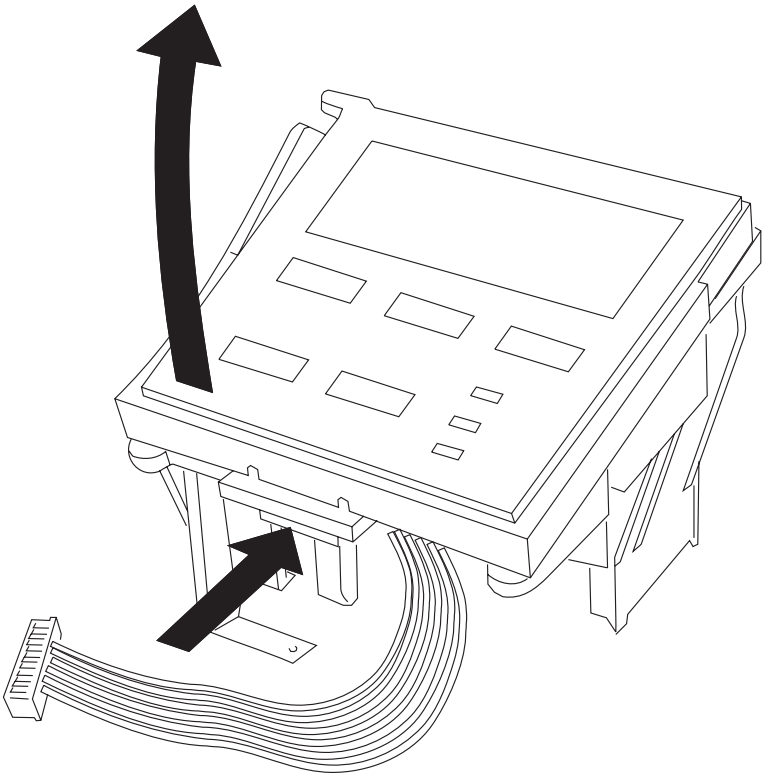
Operator Panel Removal

1. Remove the covers.
2. Remove the operator panel base and operator panel assembly by pulling latch and lifting the assembly. Lay the assembly on its right side.



3. Disconnect the operator panel cable from the right connector card.
4. To replace the operator panel, it is necessary to separate the operator panel from the base. Push the latch to release the operator panel.

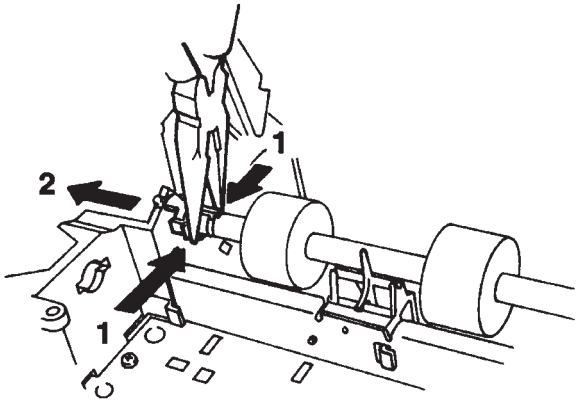
5. Lift the operator panel upward.



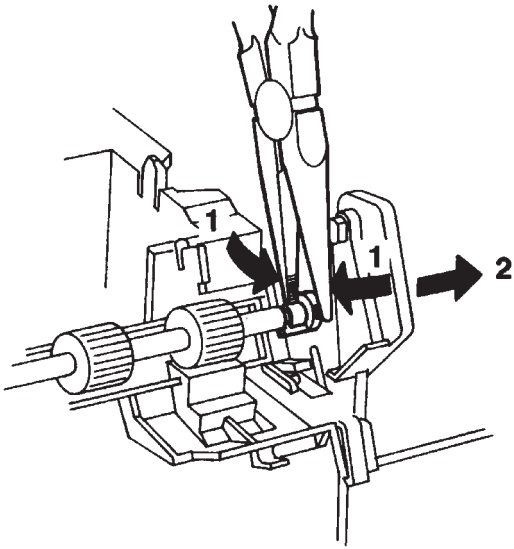
Paperfeed And Eject Rollers Removal

1. Remove the covers.
2. Center the carriage.
3. Remove the operator panel.
4. Remove the carriage frame.
5. Remove the purge unit, leaving the ink tubes connected.
6. Remove the pickup roller and paper lifting plate.
7. Remove the pinch roller base unit.
8. Remove the platen.

9. Squeeze the latch (**1**) while pushing the roller to the left (**2**)..

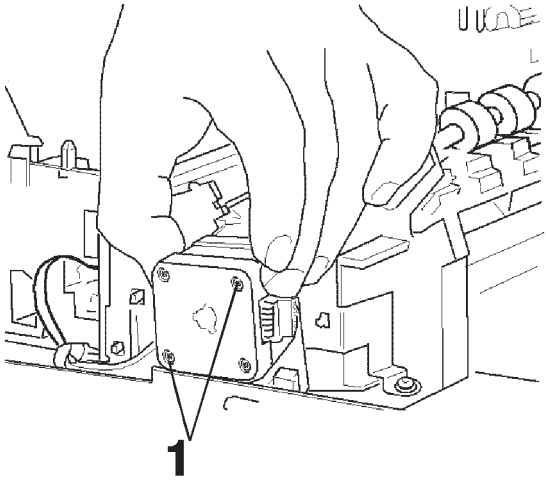


10. Using a thin screwdriver, raise the latch on the shaft and pull the shaft to the right.
11. Remove the eject roller (below) in the same way as the paper-feed roller.



Paperfeed Motor Removal

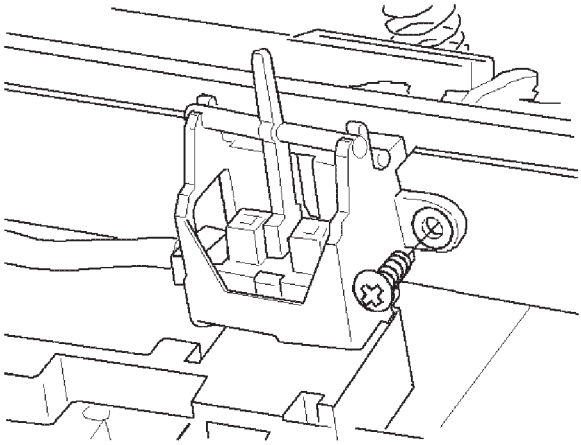
1. Remove the covers.
2. Disconnect the paperfeed motor cable.
3. Loosen two screws (**1**) on opposite corners of the paperfeed motor and remove the motor. Do not loosen the other two screws.



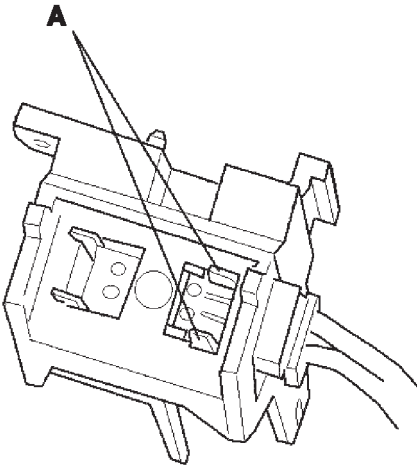
Paper Sensor Removal

1. Remove the covers.
2. Remove the controller board and logic board.

3. Remove the mounting screw to release the paper sensor holder.



4. Squeeze the latches (**A)** on the bottom of the sensor holder, at the same end as the connector.

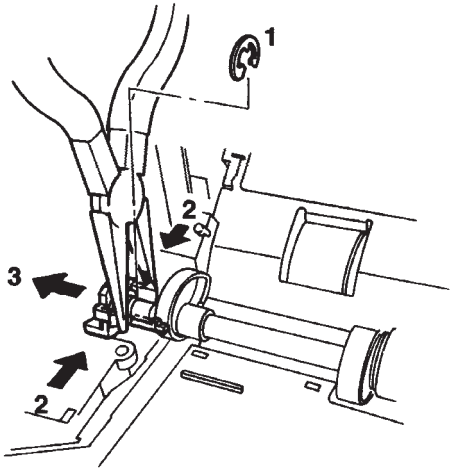


5. Remove the sensor from the holder.

Installation Notes: When replacing the paper sensor, first put the hook on the sensor holder into the metal frame, then align the sensor and insert the screw.

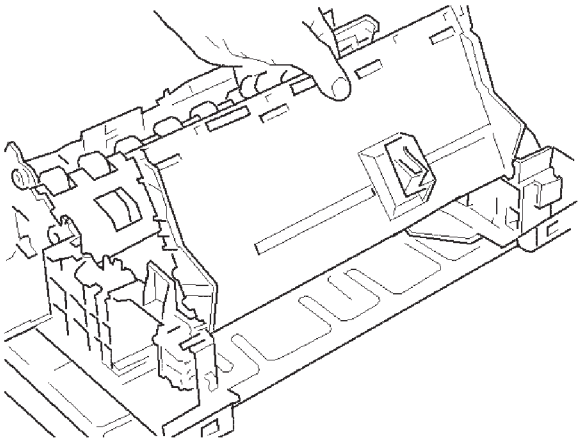
Pickup Roller, Paper Lifting Plate Removal

1. Remove the covers.
2. Center the carriage.
3. Remove the operator panel.
4. Remove the carriage frame.
5. Remove the pinch roller base unit.
6. Remove the E-ring (**1**) from the pickup roller shaft. This shaft has a three-latch bearing.
7. Squeeze the latches (**2**) on the bearing opposite the clutch end while pushing the shaft to the left.



8. Use a long, thin screwdriver to release the latch on the bottom of the shaft and remove the bearing.
9. Lift out the pickup roller shaft toward the right.

10. Raise the paper lifting plate and remove it.

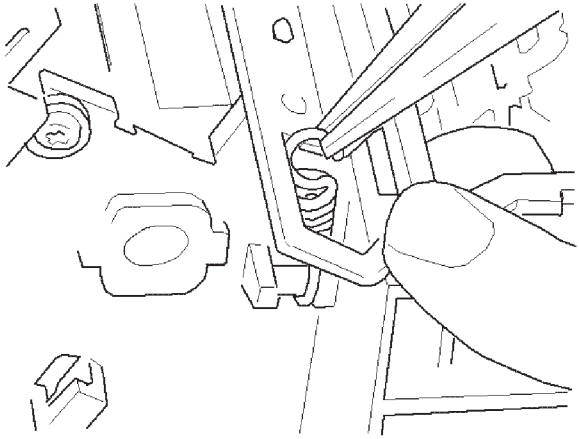


Installation Notes: When installing the pickup roller shaft, line up the holes in the pinch roller base unit with the pins on the side frames. Attach the tension springs using needle-nose pliers.

Pinch Roller Base Unit Removal

1. Remove the covers.
2. Center the carriage.
3. Remove the operator panel.
4. Remove the carriage frame.

5. Using needle-nose pliers, release the springs on each side of the pinch roller base unit.

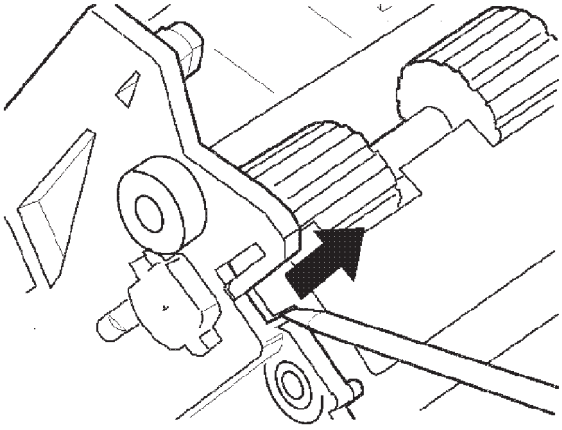


6. Carefully pull the two guide arms on the pinch roller base unit away from the pickup roller, lift the unit off and set it aside. Be careful not to bend the pressure plate. Any damage to the pressure plate could cause print problems.

Platen Removal

1. Remove the covers.
2. Center the carriage.
3. Remove the operator panel.
4. Remove the carriage frame.
5. Remove the purge unit part way, without removing the ink tubes.
6. Remove the pinch roller base unit.
7. Remove the pickup roller and paper lifting plate.
8. Remove the screws holding the platen to each side frame.
9. Insert a small screwdriver as shown and lift the platen up and out.

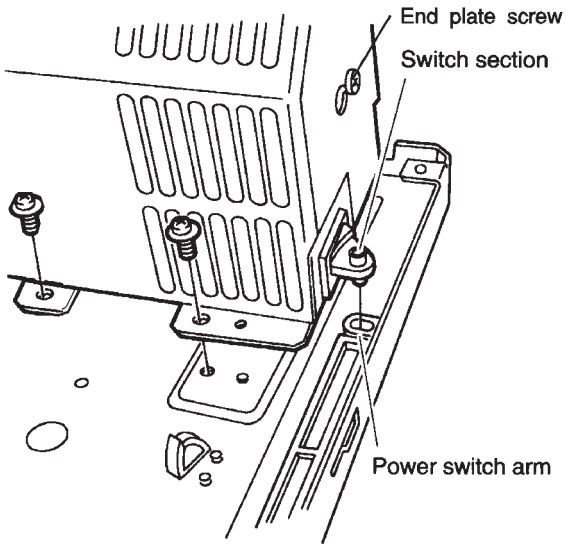
.



Installation Notes: When replacing the platen, insert the longer right-side tab first, then snap the left side into place.

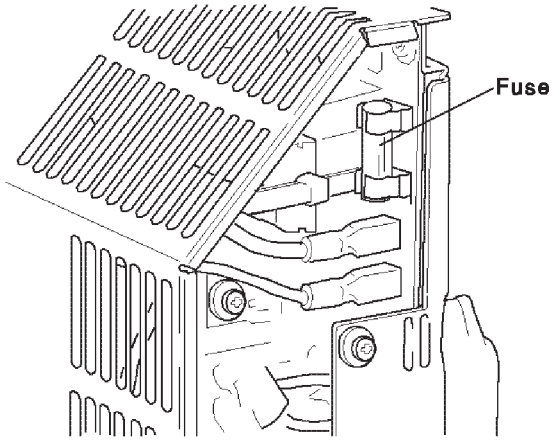
Power Supply Removal

1. Remove the covers.
2. Disconnect power supply connector from controller board J4.
3. Remove controller board mounting screws.
4. Lift controller board out of machine.
5. Remove two power supply mounting screws at front of power supply. Note how the power switch arm is engaged with the power supply.



6. Disconnect the logic board connector from the power supply CNPOW.

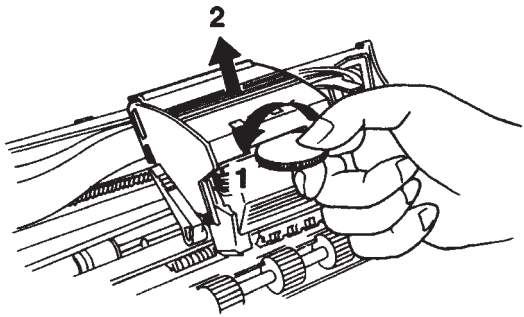
7. Remove the end plate by loosening the screw and sliding the plate off. This will reveal the 3.15A fuse.



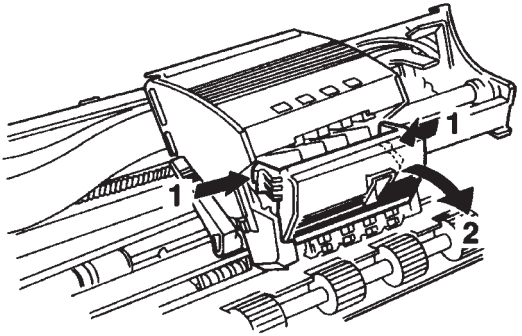
Installation Notes: When replacing the power supply, remember to hook up the power switch arm and replace the end plate.

Printhead, Printhead Cover Removal

1. Remove the covers.
2. Center the carriage.
3. Raise the carriage card holder cover by turning a large coin in the slot 1 and raising the carriage card cover 2. This disconnects the heads from the cover.



4. Squeeze both sides of the printhead cover (**1**) and pull it downward (**2**). Note the hook and latch on each side.



5. Pull out the four printheads and lay them aside in a safe place where the ink will not stain anything. Note the location of each color, so they can be returned to the same positions.

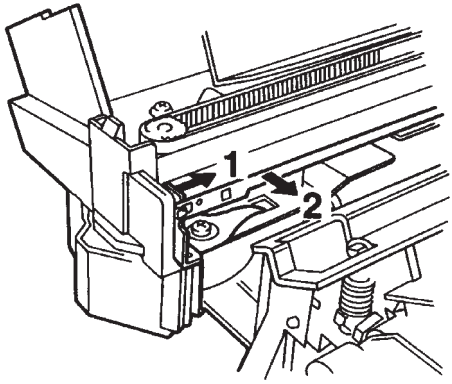
Note: When printheads are removed, be sure the carriage is placed on a packet of cleaning cloths to absorb the ink that may drain from the carriage ink supply subtanks.

Installation Notes: When installing the printheads, be sure to push each printhead into the correct slot. The color letters are on the carriage card holder cover.

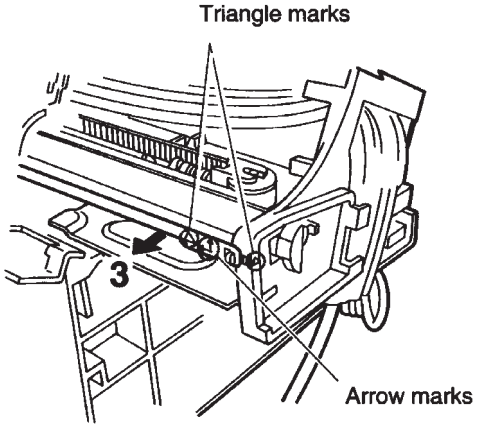
Print Timing Slit Removal

1. Remove the covers.
2. Center the carriage.

3. Push the leaf spring (**1**) and unhook the left end of the print timing slit (**2**).



4. Unhook the right end of the timing slit (**3**).



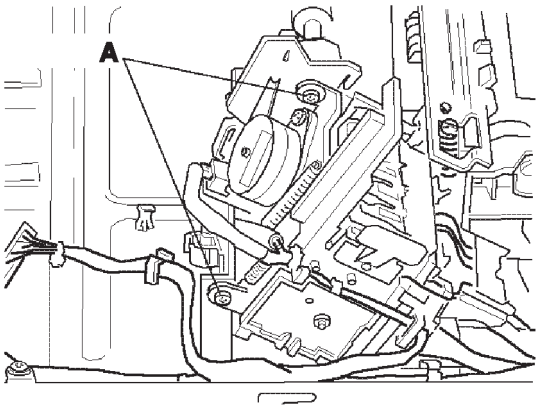
5. Draw the print timing slit through the carriage and out of the machine.

Installation Notes: When you install the timing slit, note that the purge unit side has triangle marks and arrows, which must point upward.

Purge Unit Removal

Warning: If possible, move the printer to a suitable service area, and cover the table with the drop cloth before servicing ink tubes or the purge unit.

1. Remove the covers.
2. Center the carriage.
3. Disconnect the purge unit cable from the left connector card at CNPG and release the wires from the wiring saddles.
4. Remove two mounting screws (**A)** from the purge unit. Lift it up and forward, but not out of the machine.



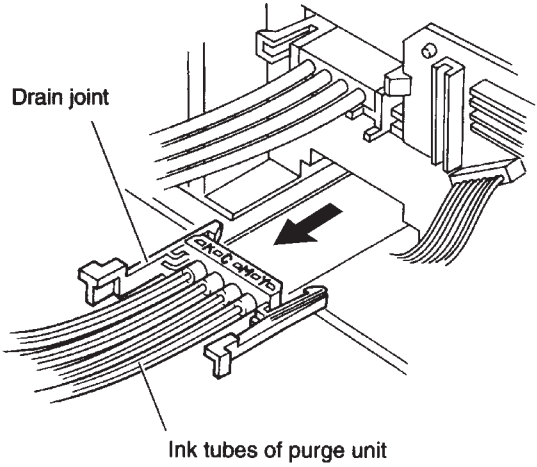
Do not unplug the ink tubes for normal maintenance servicing. The purge unit can be lifted and laid aside while other parts are being serviced.

To replace the purge unit:

When it is necessary to replace the purge unit, follow this procedure:

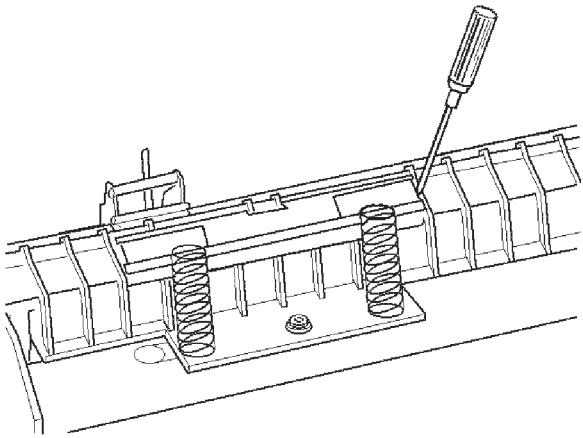
1. Lift out the purge unit as far as possible.
2. Separate the gray/black ink tube joint from the purge unit by spreading both black latches outward. Be careful not to spill ink from the tubes. Wrap the ink tube ends in cleaning cloth and secure with a rubber band.
3. Unplug the large purge waste line from the ink cartridge assembly. Wrap the ink tube ends in cleaning cloth and secure with a rubber band.

The purge unit can now be lifted out of the printer.



Separation Sheet Removal

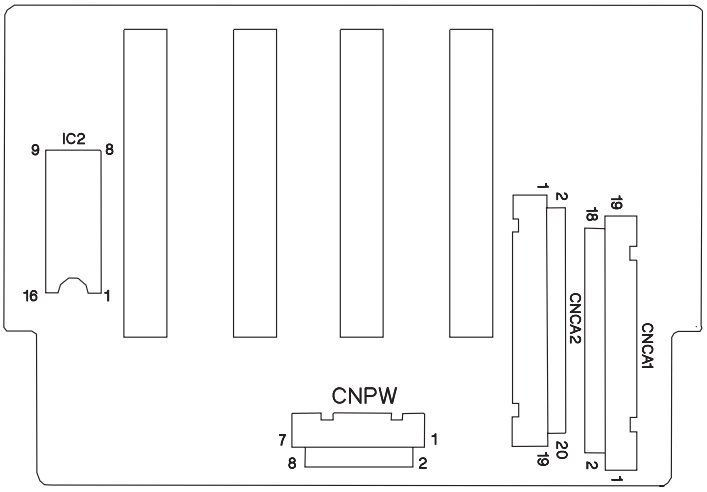
1. Remove the covers.
2. Remove the carriage frame.
3. Remove the pinch roller base unit.
4. Remove the pickup roller.
5. Remove the separation sheet by pushing a screwdriver in at each end.



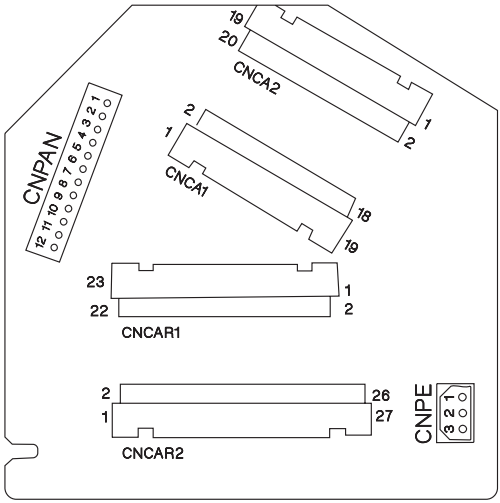
5. Connector Locations

The following pages show the location of specific test points and major parts of the printer. Illustrations of the paper path and the ink supply system are also included.

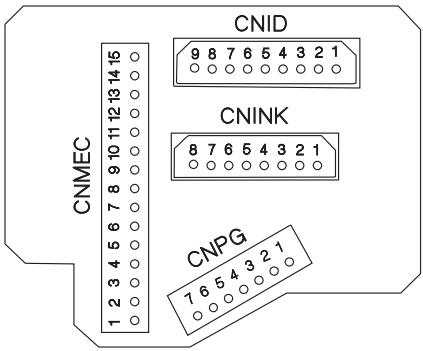
Carriage Card



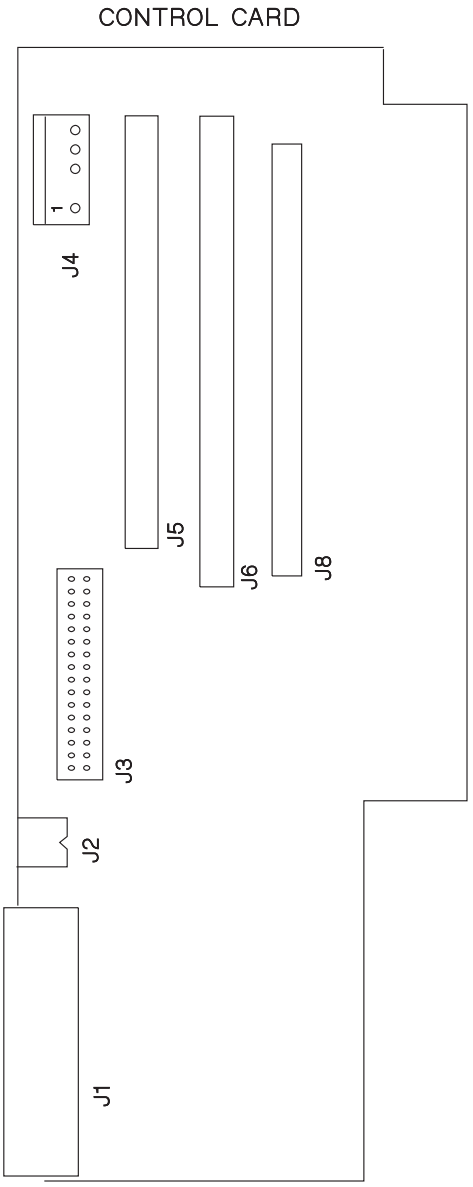
Right Connector Card



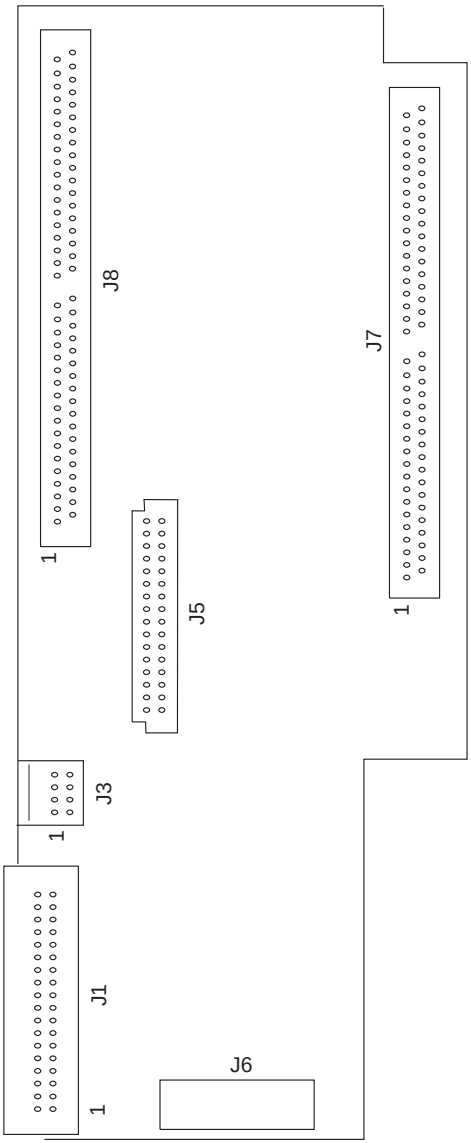
Left Connector Card



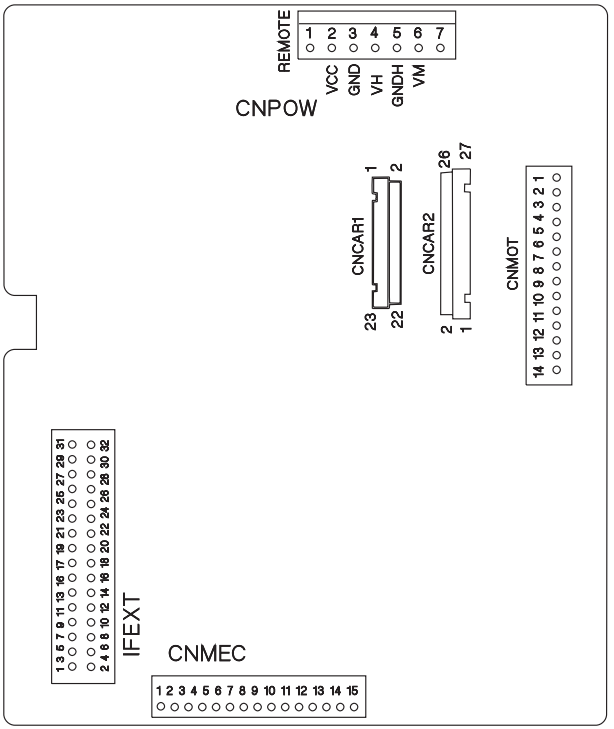
Control Card 4079 - 001



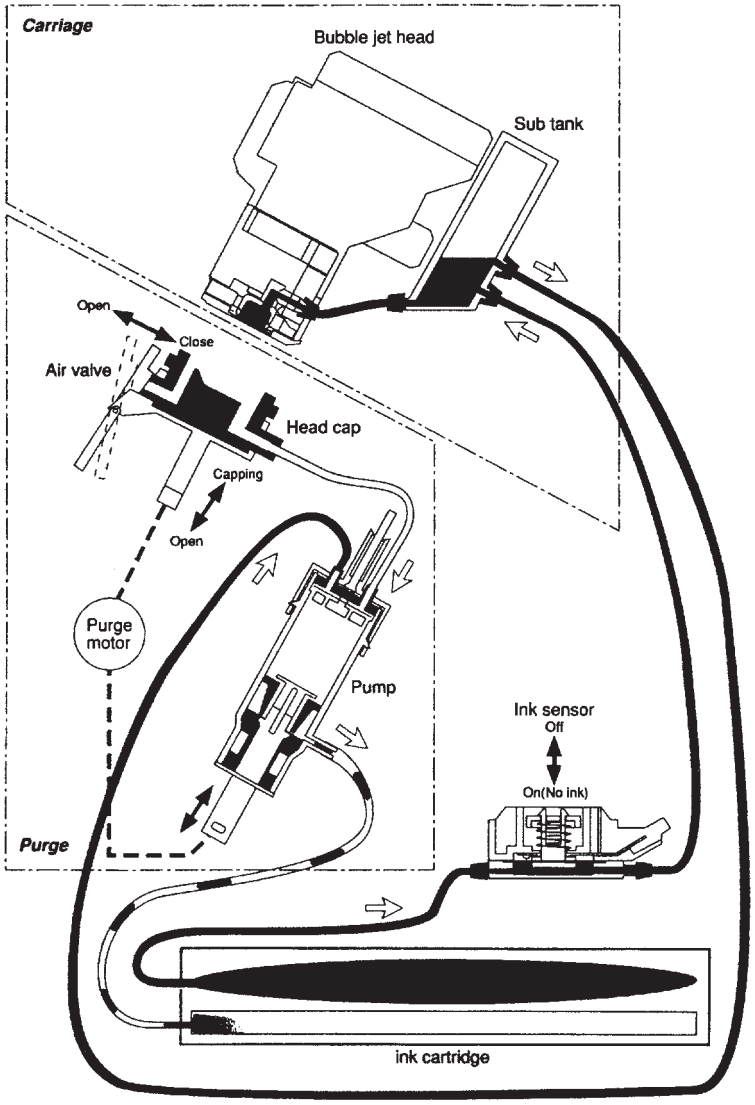
Control Card 4079 - 002



Logic Card


REMOTE
1 2 3 4 5 6 7
VCC
GND
VH
GNDH
VM
CNPOW
CNCAR1
1
2
23
22
CNCAR2
26
27
2
1
CNMOT
14 13 12 11 10 9 8 7 6 5 4 3 2 1
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
IFEXT
CNMEC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Ink Supply Diagram



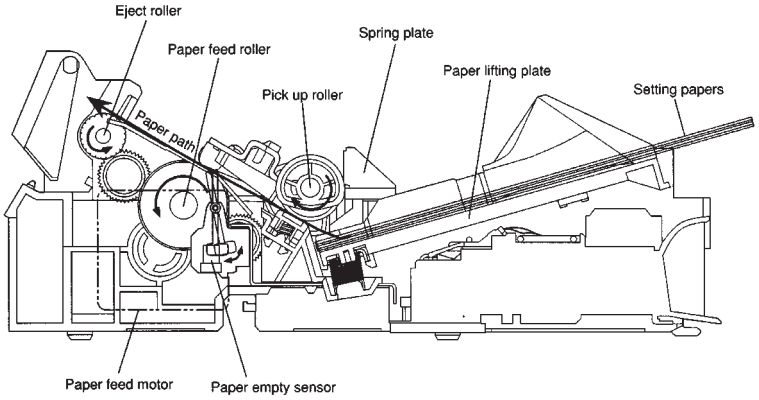
The ink diagram illustrates the ink flow for a single color ink. Each color ink has the same ink flow pattern.

- The ink cartridge supplies the ink to the sensor lines and also

absorbs waste ink in a separate chamber.

- The pump (located in the purge assembly) draws ink from the ink cartridge, through the ink, through the supply lines and into the subtank.
- Ink feeds into the printhead from the subtank.
- Waste ink from the subtank is drawn to the pump, combined with waste ink from the head cap mechanism, and pumped in a pulsing action into the bottom chamber of the ink cartridge, where it is absorbed.

Paper Path



6. Preventive Maintenance

This chapter describes procedures for printer preventive maintenance. Following these recommendations can help prevent problems and maintain optimum performance.

Safety Inspection Guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

Use good judgment to identify possible safety conditions not covered by this inspection guide. Refer to the safety reminders for a general checklist.

If any unsafe conditions exist, find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items:

- Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply.
- Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover.
- Possible safety exposure from any non-Lexmark attachments.

Lubrication Specifications

Use Grease (part 1321875) on the following parts as needed:

- All shaft holders
- The shaft hole of eject roller, pickup roller, and paperfeed roller on the right frame.
- The gears on the right frame.
- The clutch spring of pickup roller unit.
- The clutch cam of pickup roller unit.
- The worm gear of purge motor.
- The contact part of pinch roller base.
- The carriage shaft.

Do not over-grease the parts, but make sure new parts have adequate lubrication.

7. Parts Catalog

How To Use This Parts Catalog

- SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- NS: (Not Shown) in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- PP: (Parts Packet) in the description column indicates the part is contained in a parts packet.
- INDENTURE: The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly. For example:

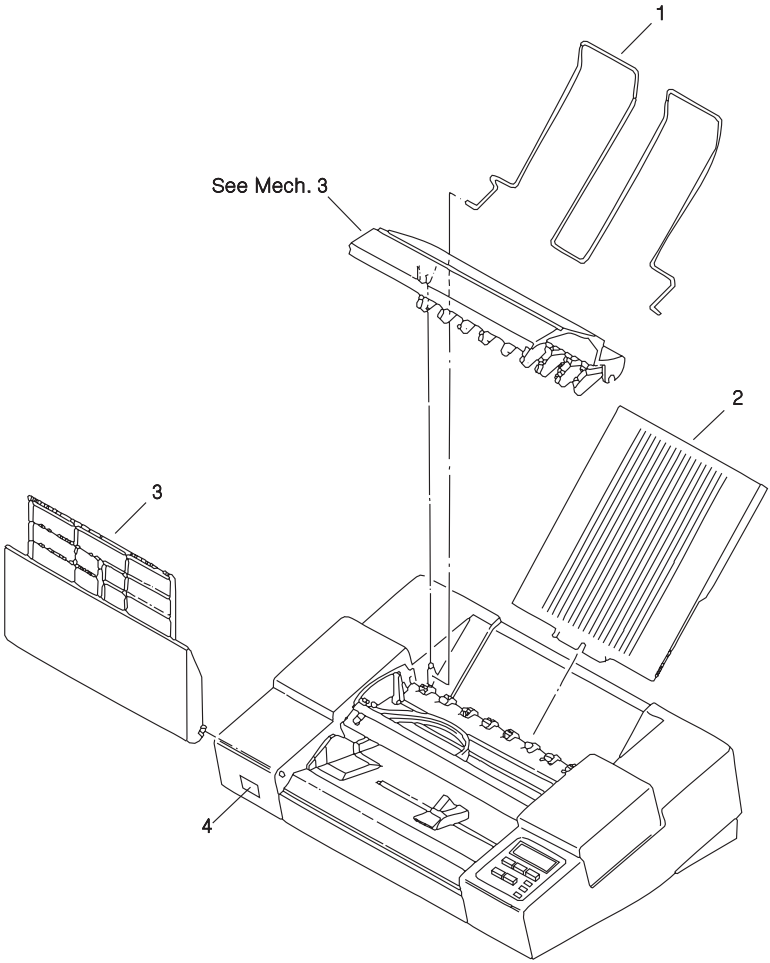
  INDENTURE RELATIONSHIP OF PARTS

  (No dot) MAIN ASSEMBLY

  (One dot) • Detail parts of a main assembly

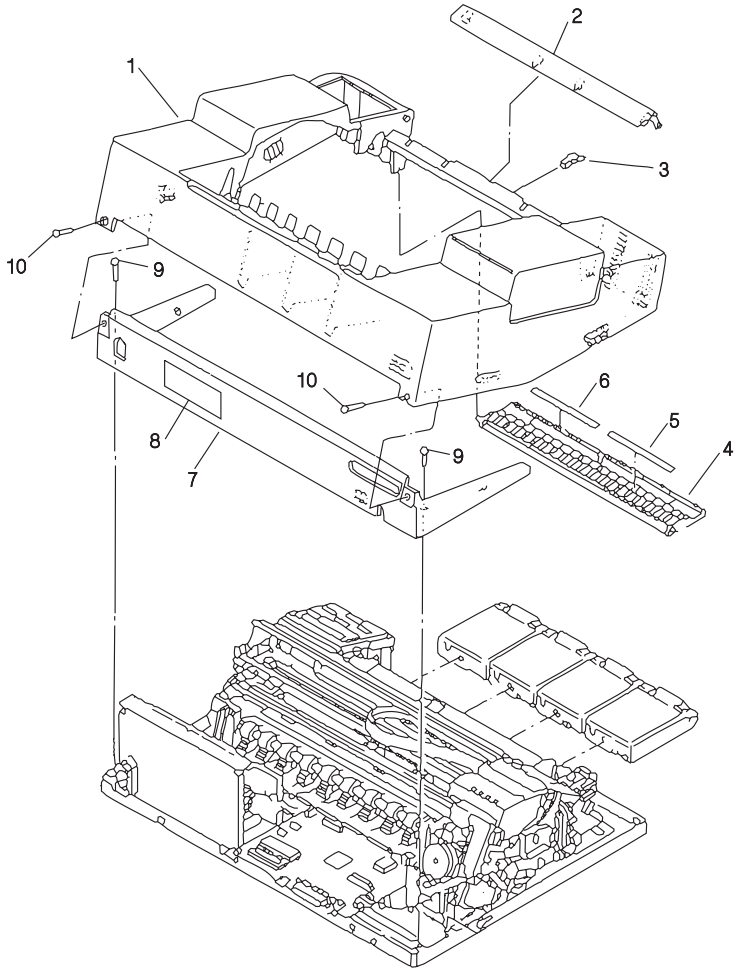
  (One dot) • Subassembly of the main assembly

Assembly 1: Covers



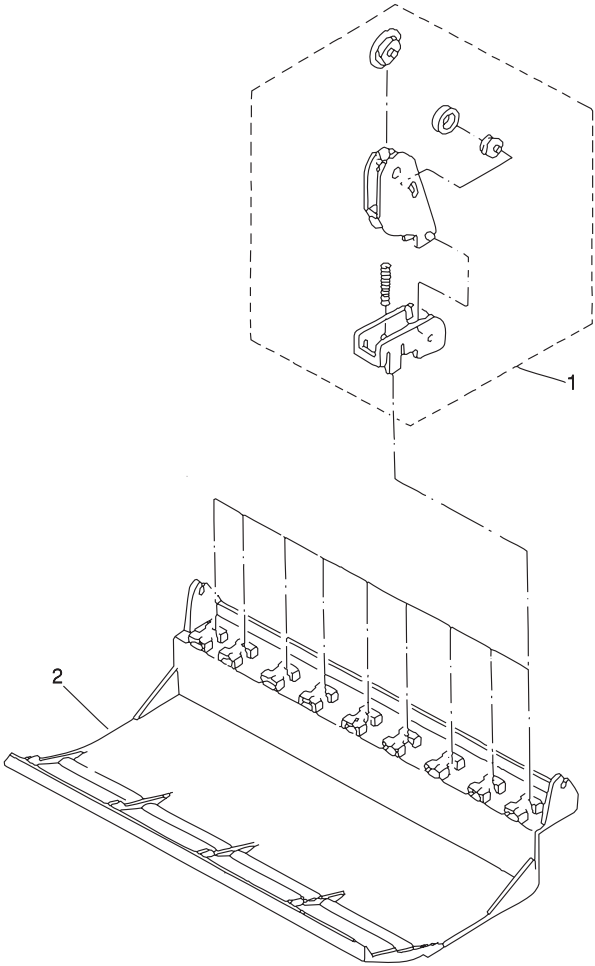
Asm-Index	Part Number	Units	Description
1-1	1321701	1	Support, Paper
-2	1321703	1	Guide, Printed Paper, 4079-001
-2	1373324	1	Guide, Printed Paper, 4079-002
-3	1321704	1	Cover, Front, 4079-001
-3	1373325	1	Cover, Front, 4079-002
-4	1321707	1	Label, Serial Number

Assembly 2: Covers (Cont.)



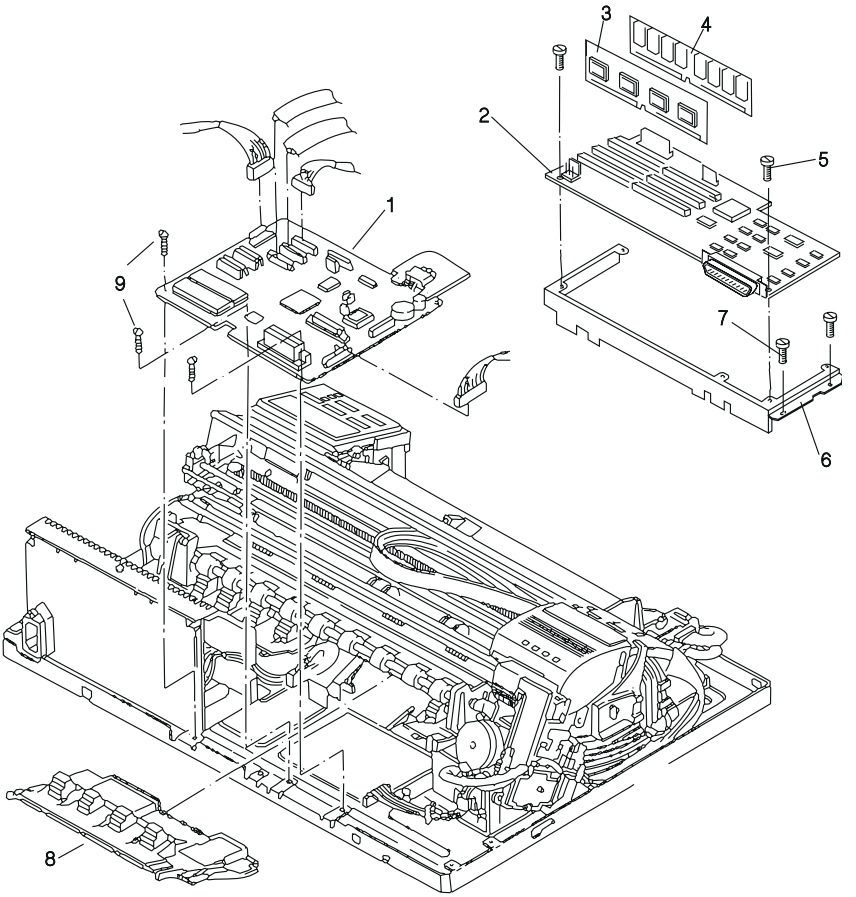
Asm-Index	Part Number	Units	Description
2-1	1321708	1	Top Cover (with logo),4079-001
-1	1373326	1	Top Cover (with Logo) 4079-002
-2	1321709	1	Plate, Upper Cover, 4079-001
-2	1373366	1	Plate, Upper Cover, 4079-002
-3	1321710	1	Coupler
-4	1321711	1	Cover, Ink Cartridge (also order refs. 5 and 6), 4079-001
-4	1373368	1	Cover, Ink Cartridge (also order refs. 5 and 6), 4079-002
-5	1321712	1	Label, Ink Cartridge, Left, 4079-001
-5	1373369	1	Label, Ink Cartridge, Left, 4079-002
-6	1321713	1	Label, Ink Cartridge, Right, 4079-001
-6	1373370	1	Label, Ink Cartridge, Right, 4079-002
-7	1321870	1	Cover, Rear w/U.S. Electrical label, 4079-001
-7	1373343	1	Cover. Rear w/US Electrical Label, 4079-002
-7	1321872	1	Cover, Rear w/W.T. Electrical label, 4079-001
-7	1373347	1	Cover, Rear w/W.T. Electrical label, 4079-002
-8	1331690	1	Label, FCC, 4079-001
-8	1373132	1	Label, FCC, 4079-002
-9	1321861	2	Screw
-10	1321863	2	Screw

Assembly 3: Inner Cover



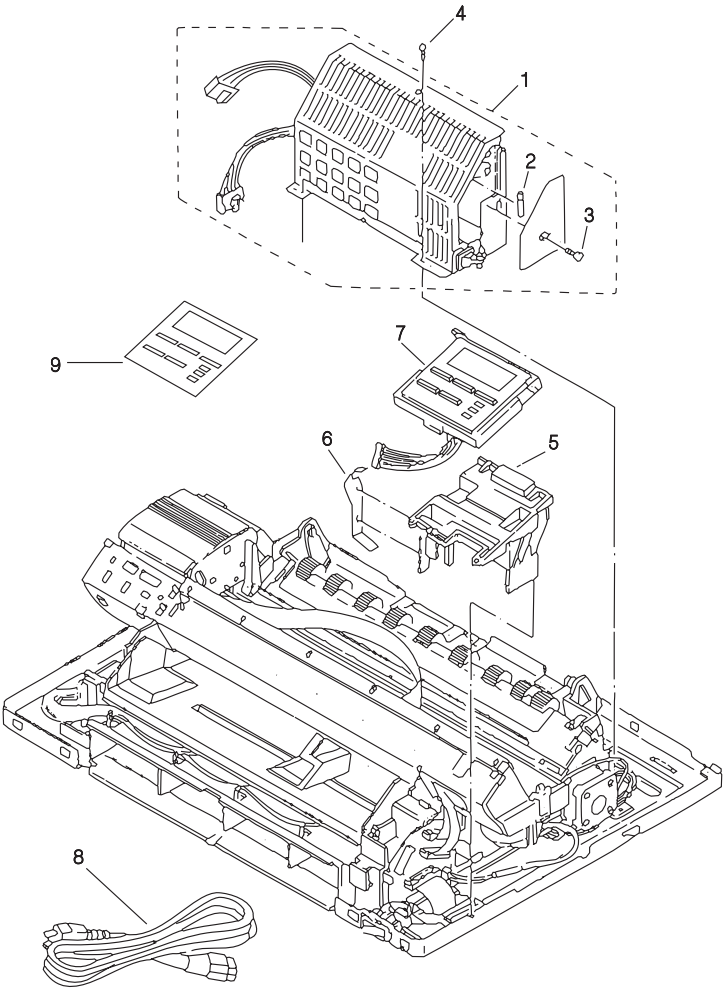
Asm-Index	Part Number	Units	Description
3-1	1321717	1	Spur Unit Assembly
-2	1321716	1	Cover, Inner (Access Cover), 4079-001
-2	1373359	1	Cover, Inner (Access Cover), 4079-002

Assembly 4: Printer Electronics



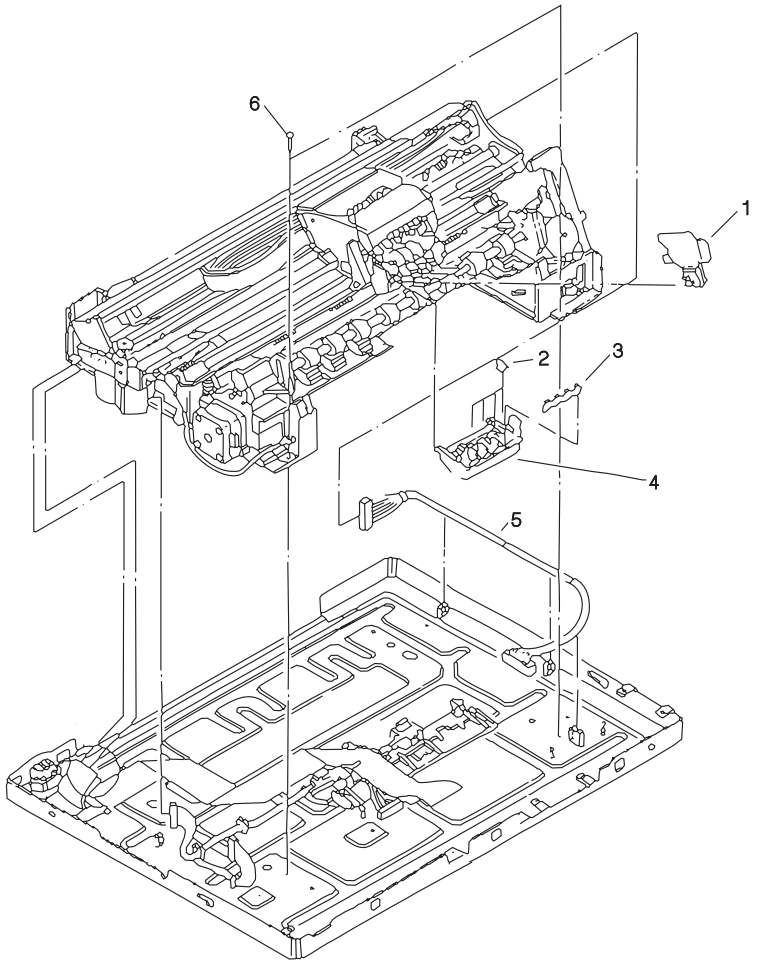
Asm-Index	Part Number	Units	Description
4-1	1321719	1	Logic Board, 4079-001
-1	1373371	1	Logic Board, 4079-002
-2	1321825	1	Controller Board, 4079-001 (does not include EPROM Controller Card or Memory SIMM)
-2	1373373	1	Controller Board (does not include EPROM Controller Card, memory is on the board), 4079-002
-3	1321880	1	EPROM, Control Card, 4079-001
-3	1373363	1	EPROM, Control Card, 4079-002
-4	1364877	1	Memory SIMM 4 MB, 4079-001
-5	1621171	3	Screw, Controller Board
-6	1321824	1	Bracket
-7	1321861	5	Screw, Bracket
-8	1321718	1	Cover, Card, 4079-001
-8	1373327	1	Cover, Card, 4079-002
-9	1321864	3	Screw, Logic Board
NS	1321866	1	Y-Cable, Serial/Parallel

Assembly 5: Power Supply and Control Panel



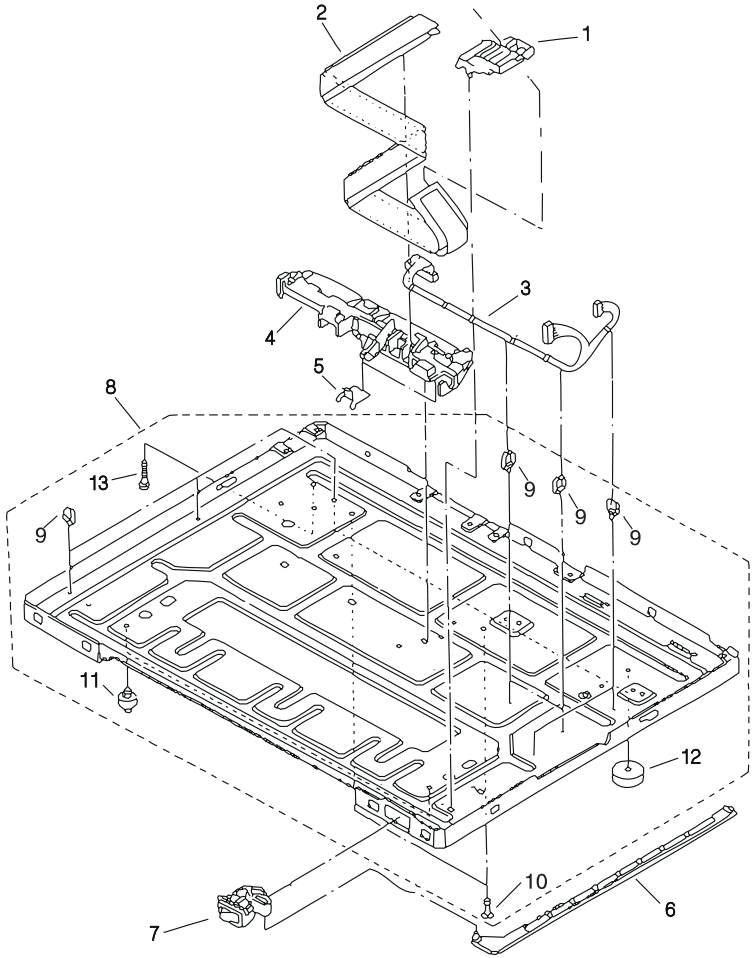
Asm-Index	Part Number	Units	Description
5-1	1321884	1	Power Supply, 120 V
-1	1321885	1	Power Supply, 220 V
-2	1321726	1	• Fuse, 125 V 3.15 A
-2	1321727	1	• Fuse, 250 V 2.0 A
-3	1321858	1	• Screw
-4	1321863	1	• Screw
-5	1321729	1	Base, Control Panel
-6	1321832	1	Plate, Grounding (also in PP 1321820)
-7	1321728	1	Panel, Control, 4079-001 (with English Overlay)
-7	1373328	1	Panel, Control, 4079-002 (with English Overlay)
-8	1342514	1	Cord, Power, US
-8	1339520	1	Cord, Power, Europe
-8	1339525	1	Cord, Power, Denmark
-8	1339524	1	Cord, Power, Italy
-8	1339521	1	Cord, Power, Israel
-8	1339523	1	Cord, Power, South Africa
-8	1339522	1	Cord, Power, Switzerland
-8	1339519	1	Cord, Power, UK
-9	1321827	1	Overlay, Control Panel, 4079-001 (WT Overlay Kit)
-9	1373339	1	Overlay, Control Panel, French, 4079-002
-9	1373340	1	Overlay, Control Panel, German, 4079-002
-9	1373341	1	Overlay, Control Panel, Italian, 4079-002
-9	1373342	1	Overlay, Control Panel, Spanish, 4079-002

Assembly 6: Carriage and Printhead



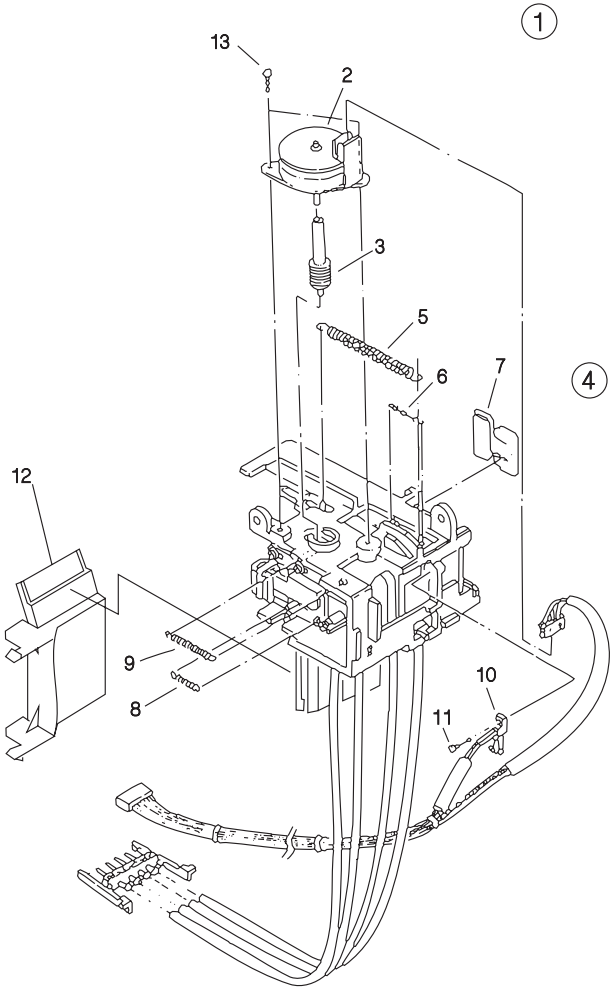
Asm-Index	Part Number	Units	Description
6-1	1321731	1	Printhead
-2	1321833	1	Clip, Head Cover Stabilizer
-3	1321834	1	Clip, Head Cover Stabilizer
-4	1321730	1	Cover, Printhead
-5	1321732	1	Cable, Connector Card Left
-6	1321863	1	Screw

Assembly 7: Base



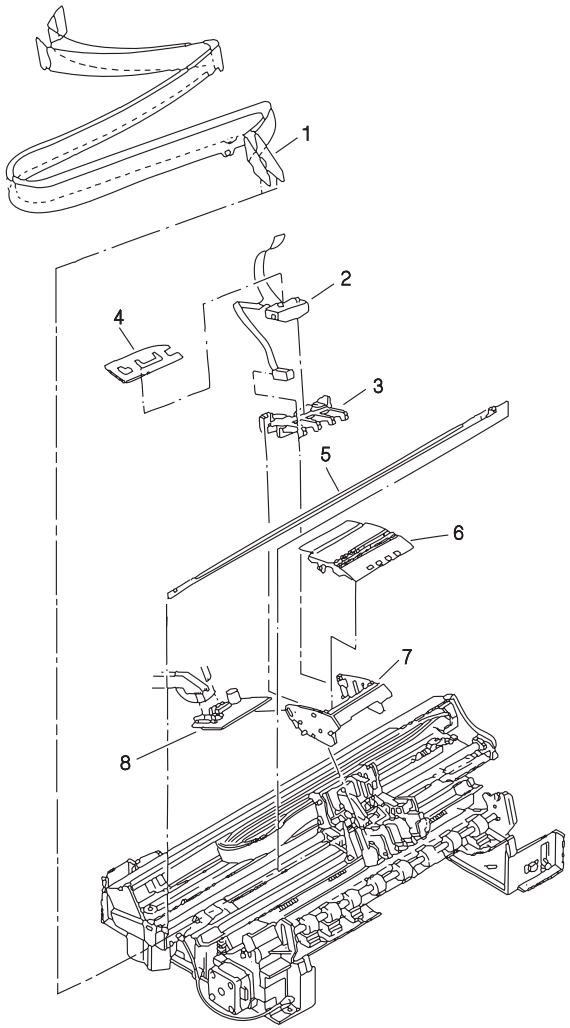
Asm-Index	Part Number	Units	Description
7-1	1321733	1	Guide, Ribbon Cable
-2	1321734	1	Ribbon Cable
-3	1321735	1	Motor Cable
-4	1321736	1	Holder, Logic Card, 4079-001
-4	1373336	1	Holder. Logic Card, 4079-002
-5	1321836	1	Plate, Grounding (also in PP 1321820)
-6	1321737	1	Arm, Power Switch Actuating
-7	1321738	1	Switch, Power, 4079-001
-7	1373330	1	Switch, Power, 4079-002
-8	1321739	1	Base Assembly
-9		1	• Clamp-Misc. PP 1321822
-10		1	• Spacer-Misc. PP 1321822
11	1321741	2	• Foot, Front
-12	1321740	2	• Foot, Rear
-13	1321860	1	• Screw

Assembly 8: Purge Unit



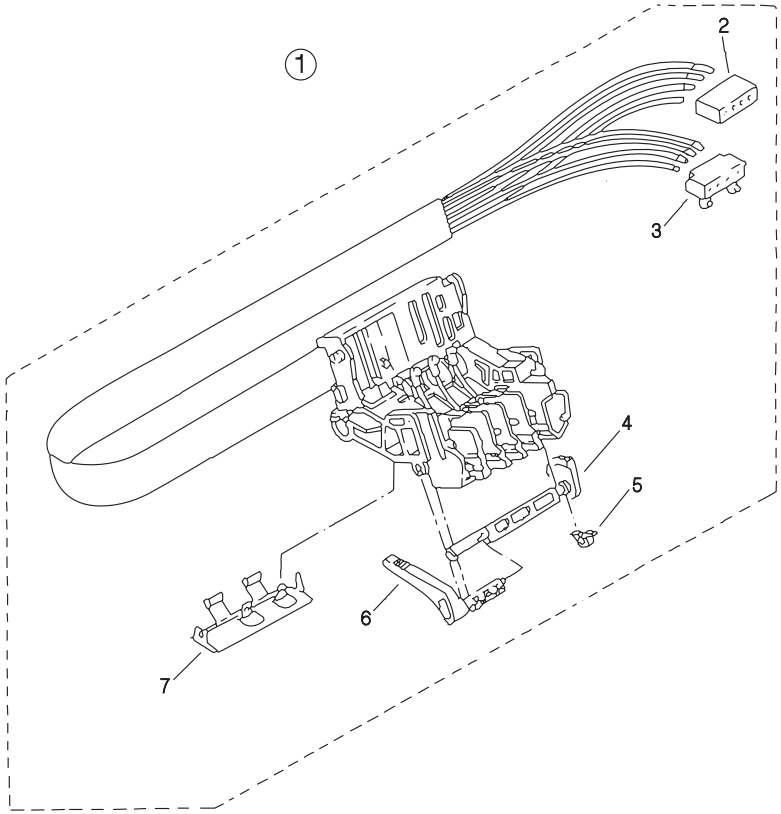
Asm-Index	Part Number	Units	Description
8-1	1321743	1	Purge Unit Assembly
-2	1321745	1	Motor, Purge Unit
-3	1321746	1	• Gear, Worm
-4	1321744	1	Purge Maintenance Kit
-5		1	• Spring
-6		1	• Spring
-7	1321837	1	• Ink Absorber
-8		1	• Spring
-9		1	• Spring
-1	1321747	1	Sensor and Cable
-10	1321857	1	Screw
-12	1321865	1	Cover, Purge Unit Hose
-13	1321859	2	Screw

Assembly 9: Print Timing Encoder



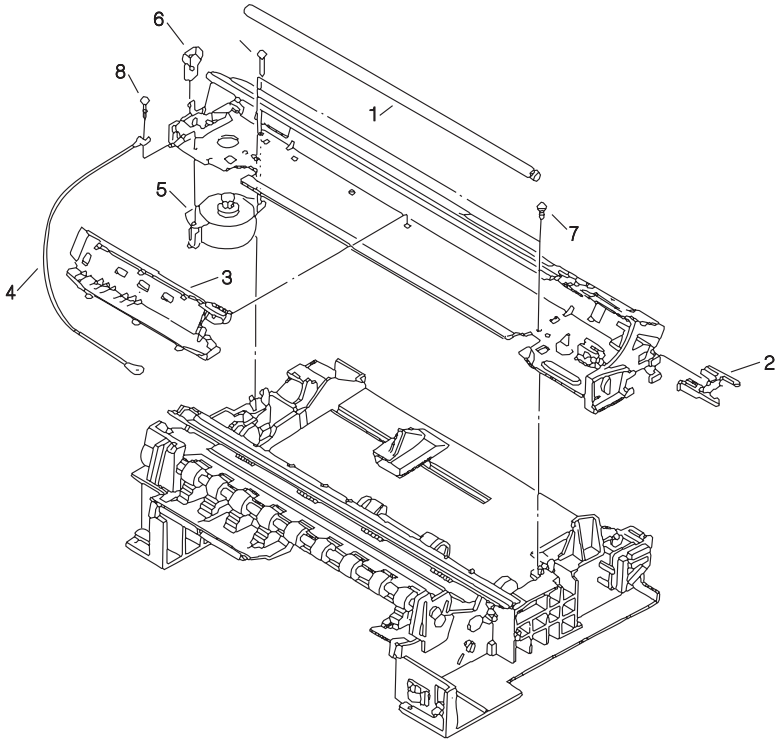
Asm-Index	Part Number	Units	Description
9-1	1321752	1	Cable, Carriage (inc. re 11-3)
-2	1321754	1	Linear Encoder/Paper Width Sensor
-3	1321838	1	Holder, Encoder
-4	1321878	1	Cover, Sensor
-5	1321749	1	Slit, Print Timing
-6	1321750	1	Cover, Carriage Card Holder
-7	1321751	1	Holder, Carriage Card
-8	1321753	1	Card, Carriage

Assembly 10: Carriage Ink Supply



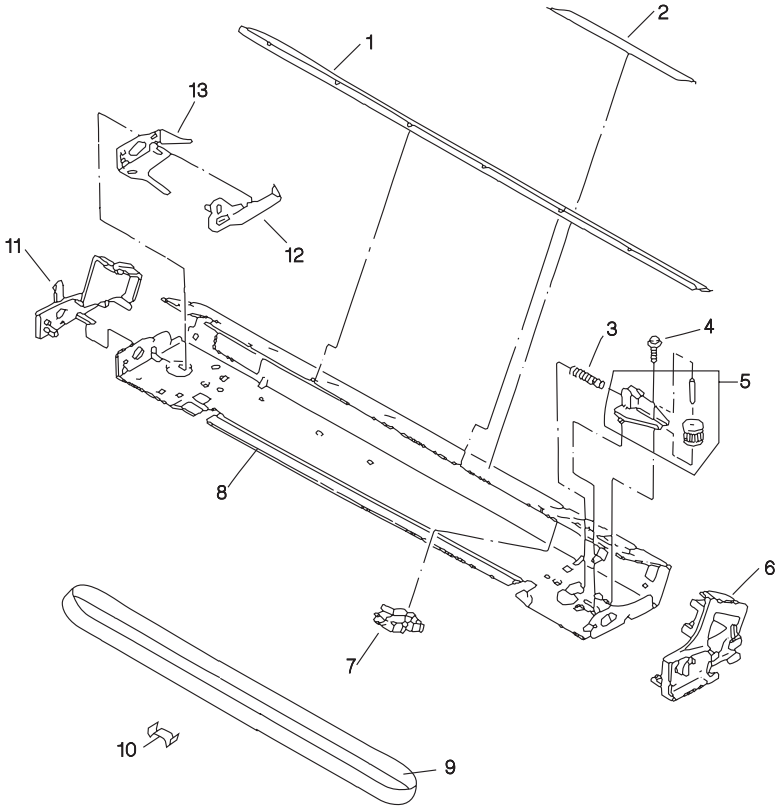
Asm-Index	Part Number	Units	Description
10-1	1321888	1	Carriage Ink Supply Assembly
-2	1321756	1	• Joint, Supply
-3	1321757	1	• Joint, Pump
-4	1321839	1	• Shaft, Head Gap Adjustment
-5	1321840	1	• Clamp, Head Gap Adjustment
-6	1321759	1	• Lever, Head Gap Adjustment, 4079-001
-6	1373331	1	• Lever, Head Gap Adjustment, 4079-002
-7	1321758	1	• Guide, Carriage shaft Assembly

Assembly 11: Carriage Drive



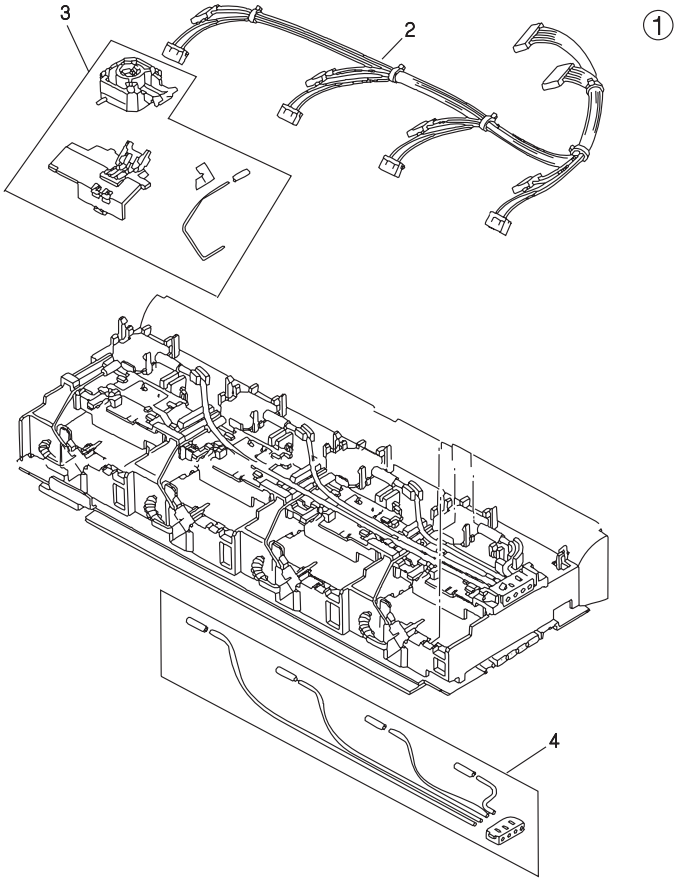
Asm-Index	Part Number	Units	Description
11-1	1321764	1	Shaft, Carriage
-2	1321762	1	Holder, Joint
-3	1321761	1	Guide, Ink Tube
-4	1321765	1	Cable, Ground
-5	1321760	1	Motor, Carriage Drive
-6	1321763	1	Stopper
-7	1321863	1	Screw
-8	1321819	1	Screw

Assembly 12: Carriage Drive Frame



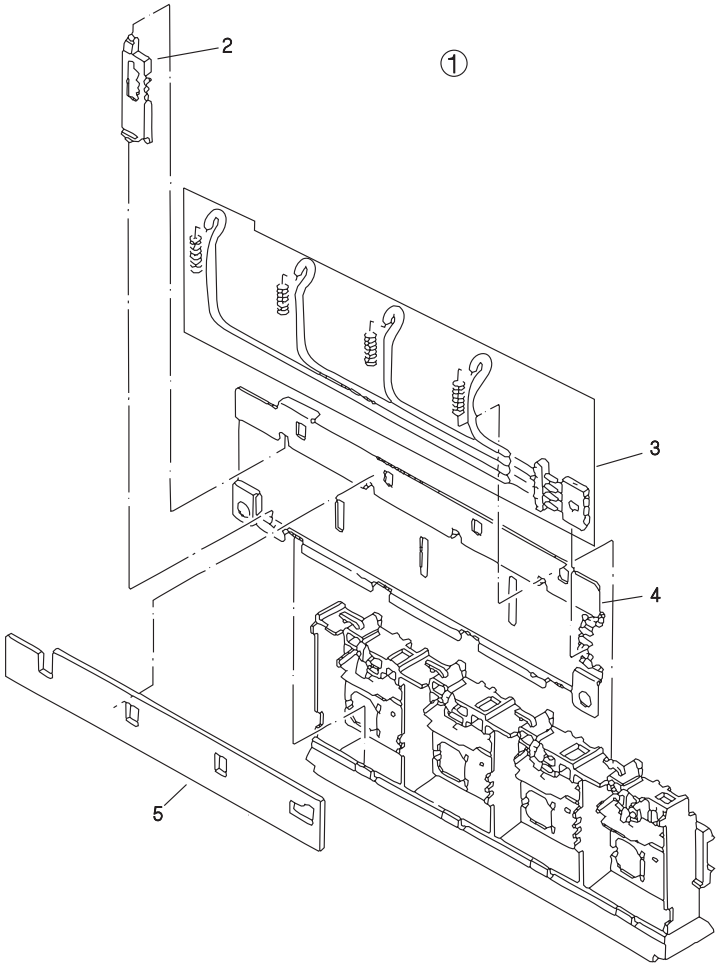
Asm-Index	Part Number	Units	Description
12-1	1321766	1	Guide, Carriage
-2	1321772	1	Label, Carriage Instructions
-3	1321842	1	Spring
-4	1321863	1	Screw
-5	1321770	1	Idler Assembly, Carriage Belt
-6	1321769	1	Plate, Right Frame
-7	1321767	1	Lever, Carriage Lock, 4079-001
-7	1373332	1	Lever, Carriage Lock, 4079-002
-8	1321773	1	Frame, Carriage
-9	1321774	1	Belt Assembly, Carriage
-10	1321843	1	Clamp (Also in Misc. Pkg. 1321822)
-11	1321771	1	Plate, Left Frame
-12	1321768	1	Hook, Print Timing Slit
-13	1321841	1	Spring, Leaf

Assembly 13: Ink Supply Unit



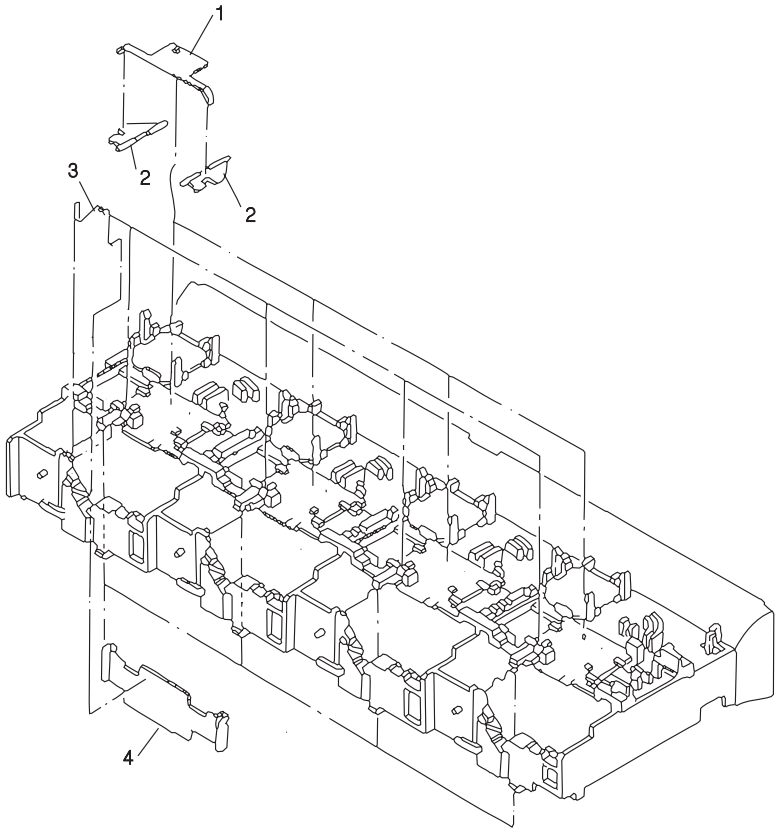
Asm-Index	Part Number	Units	Description
13-1	1321775	1	Ink Cartridge Assembly, Includes Assembly 14
-2	1321776	1	• Sensor Cable Unit
-3	1321777	1	• Ink Sensor Assembly, Complete
-4	1321779	1	• Ink Supply Hose Kit, Complete

Assembly 14: Ink Return Unit



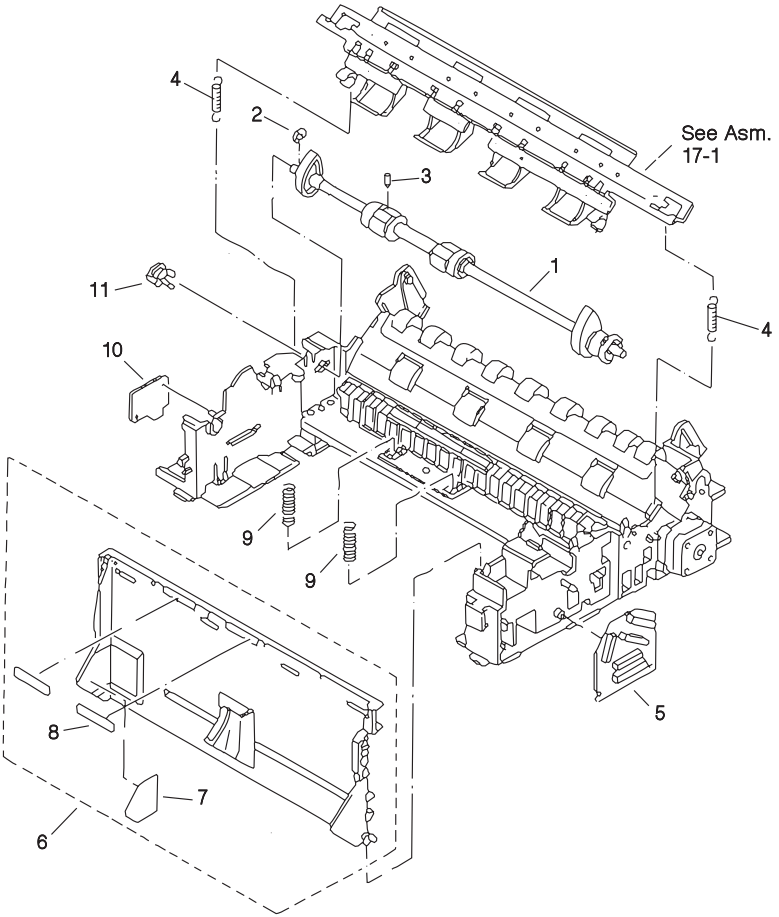
Asm-Index	Part Number	Units	Description
14-1	1321775	1	Ink Cartridge Assembly, Includes Assembly 13
-2	1321780	1	• Holder, Drain Tube
-3	1321781	1	• Drain Tube Assembly
-4	1321782	1	• Base, Ink Compartment (also order index 5)
-5	1321783	1	• Ink Absorber

Assembly 15: Ink Cartridge Interlock



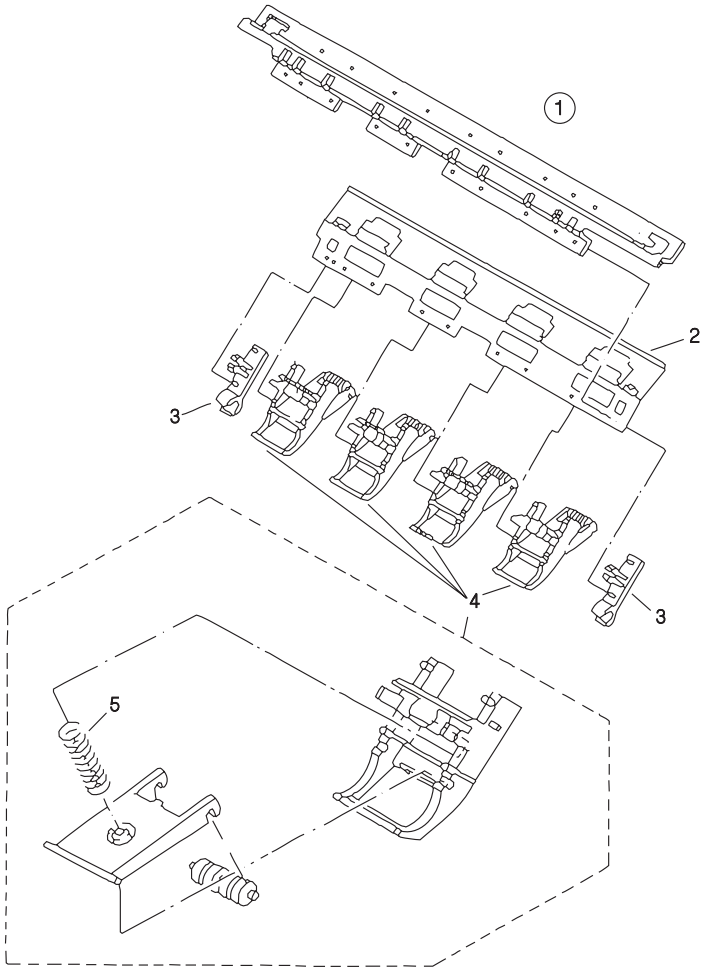
Asm-Index	Part Number	Units	Description
15-1	1321784	1	Spring, Leaf
-2	1321844	2	Plate, Lock
-3	1321845	1	Spring
-4	1321846	1	Needle Protector

Assembly 16: Sheetfeed Entry



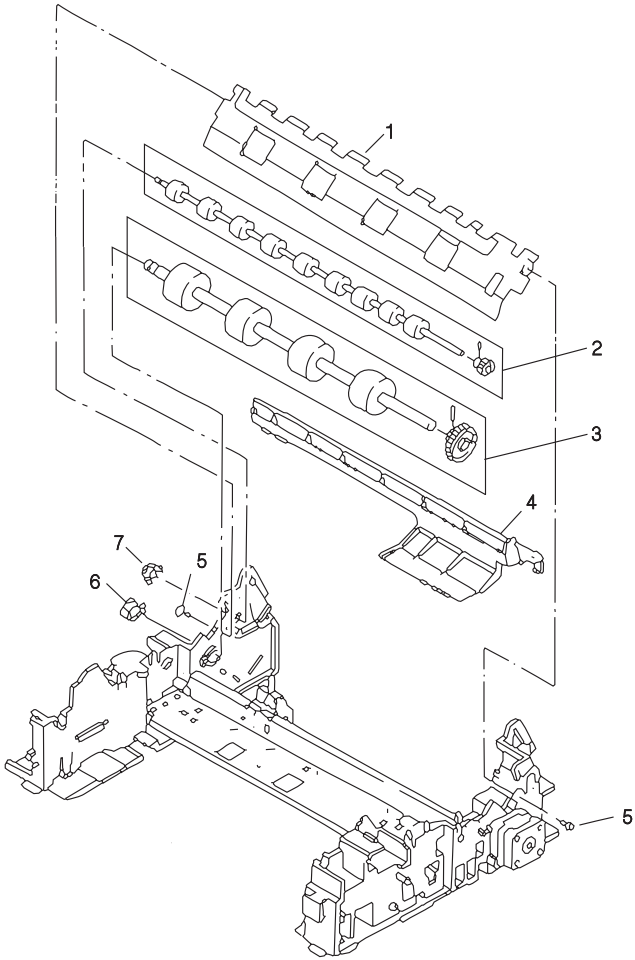
Asm-Index	Part Number	Units	Description
16-1	1321795	1	Pickup Roller Assembly
-2	1321818	1	• E-Clip (also order index 9)
-3	1321855	1	• Pin
-4	1321821	2	• Spring
-5	1321789	1	Card, Right Connector
-6	1321786	1	Plate, Paper Lifting Assembly, 4079-001
-6	1373333	1	Plate, Paper Lifting Assembly, 4079-002
-7	1321788	1	• Label, Paper Set, 4079-001
-7	1373335	1	• Label, Paper Set. 4079-002
-8	1321787	2	• Sheet, Separation
-9	1321867	2	• Spring
-10	1321790	1	Card, Left Connector
-11	1321785	1	Holder, Shaft

Assembly 17: Sheetfeed Pinch Roller



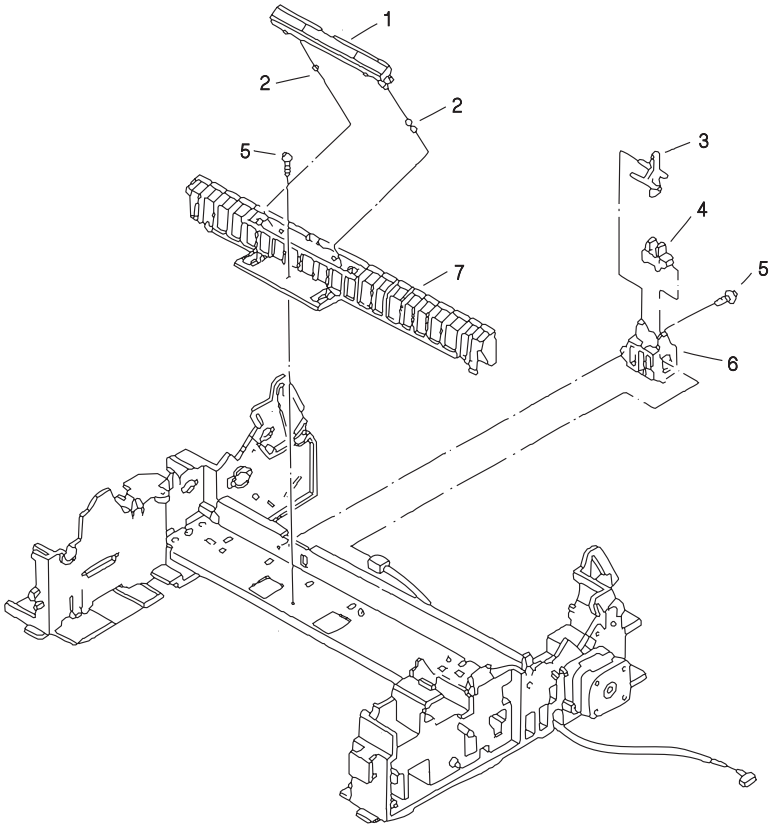
Asm-Index	Part Number	Units	Description
17-1	1321791	1	Pinch Roller Base
-2	1321794	1	• Plate, Pressure
-3	1321792	2	• Arm, Base
-4	1321793		• Pinch Roller Assembly
-5	1321868		• Spring

Assembly 18: Paperfeed/Ejector Roller



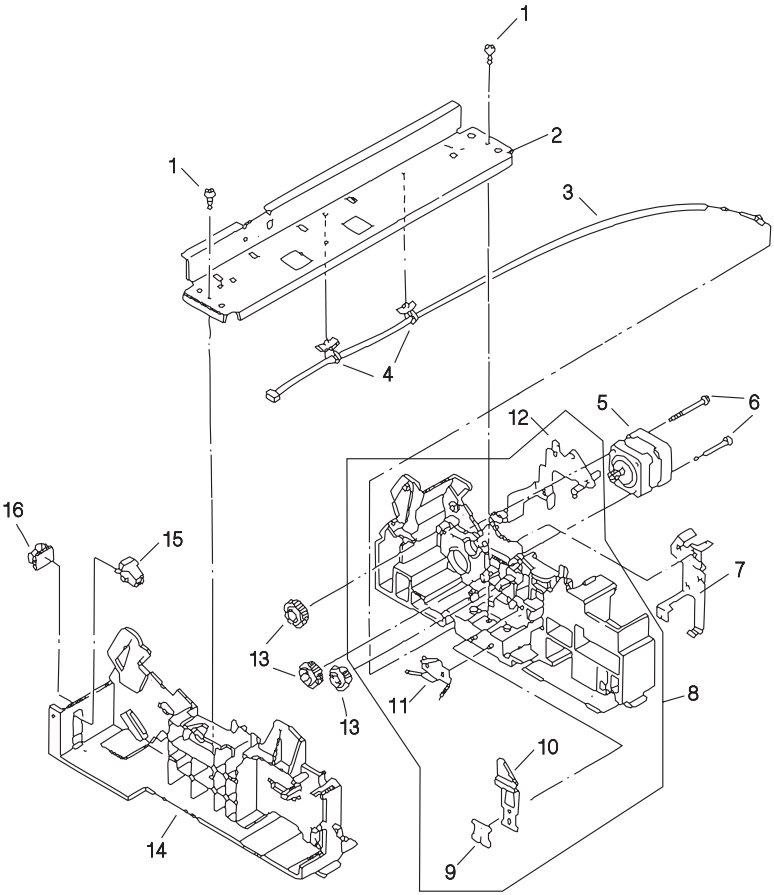
Asm-Index	Part Number	Units	Description
18-1	1321798	1	Platen
-2	1321799	1	Roller, Eject (also order ref. 7)
-3	1321802	1	Roller, Paperfeed (also order ref. 6, may need E-Clip below)
NS	1321887	1	E-Clip (used on left side of Paperfeed Roller)
-4	1321801	1	Cover, Dust, 4079-001
-4	1373367	1	Cover, Dust, 4079-002
-5	1321819	2	Screw
-6	1321803	1	Holder, Feed Shaft
-7	1321800	1	Holder, Eject Shaft

Assembly 19: Sheetfeed Separation



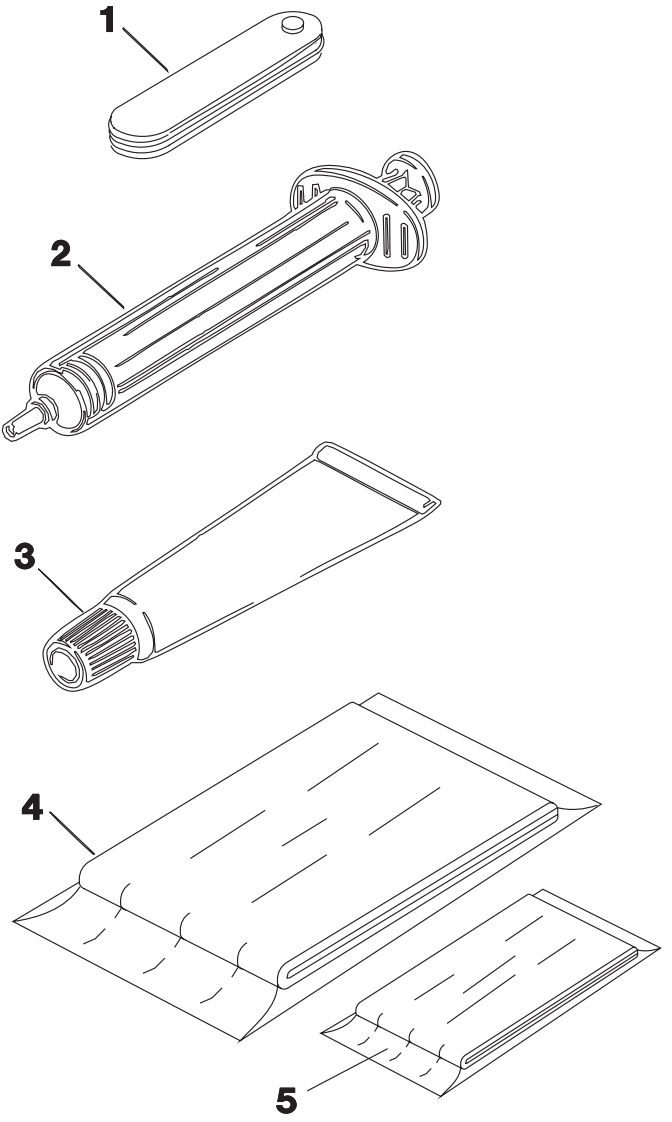
Asm-Index	Part Number	Units	Description
19-1	1321805	1	Sheetfeed Separation Assembly
-2	1321869	2	Spring
-3	1321850	1	Arm, Paper Sensor
-4	1321806	1	Paper Out Photo Sensor
-5	1321819	1	Screw
-6	1321851	2	Holder, Paper Sensor
-7	1321804	1	Base, Sheetfeed Separation

Assembly 20: Paperfeed Frame



Asm-Index	Part Number	Units	Description
20-1	1321862	2	Screw
-2	1321809	1	Frame, Center
-3	1321807	1	Cable, Paper Sensor
-4	1321852	2	Clamp
-5	1321808	1	Motor, Paperfeed
-6	1321856	2	Screw
-7	1321853	1	Plate Assembly, Ground
-8	1321812	1	Frame, Right, 4079-001
-8	1373338	1	Frame, Right, 4079-002
-9		1	• Plate
-10		1	• Spring, Ground Plate
-11		1	• Plate, Pressure, PP 1321820
-12		1	• Plate, Spring
-13	1321811	3	Gears, Transmission
-14	1321810	1	Frame, Left, 4079-001
-14	1373337	1	Frame, Left, 4079-002
-15		1	Stopper, Cap - Retainer PP 1321822
-16	1321854	1	Clamp, Cable (also in PP 1321822)

Assembly 21: Tools



Asm-Index	Part Number	Units	Description
21-1	1749245	1	Gauge, Feeler, mm
-2	1477752	1	Syringe, Ink
-3	1321875	1	Grease
-4	1280055	1	Drop Cloth
-5	2108930	1	Cleaning Cloth
NS	1319128	1	Wrap Plug
NS	452642	1	Magnifier

Assembly 22: Hard Disk and Options

Asm-Index	Part Number	Units	Description
22-1	1373404	1	Hard Disk 40 MB, includes interface card, 4079-002 only
-2	1364876	1	8 MB, DRAM SIMM
-2	1364875	1	16 MB, DRAM SIMM, 4079-002
-2	1364874	1	32 MB, DRAM SIMM, 4079-002

Index

R

S

T

U